

LINDA LINGLE  
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.  
DIRECTOR OF HEALTH

JUN 7 2010

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 3378  
HONOLULU, HAWAII 96801-3378

In reply, please refer to:  
EMD/SHWB

June 4, 2010

S0604JKF

**CERTIFIED MAIL NO. 7009 2250 0004 4923 0522**  
**RETURN RECEIPT REQUESTED**

Mr. Timothy Steinberger, Director  
Department of Environmental Services  
City and County of Honolulu  
1000 Uluohia Street  
Kapolei, Hawaii 96707

**CERTIFIED MAIL NO. 7009 2250 0004 4923 0515**  
**RETURN RECEIPT REQUESTED**

Mr. Joseph Whelan  
Operations Manager  
Waste Management of Hawaii, Inc.  
92-460 Farrington Highway  
Kapolei, Hawaii 96707

Dear Messrs. Steinberger and Whelan:

SUBJECT: Solid Waste Management Permit No. LF-0182-09  
Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii

The Department of Health (DOH), Solid and Hazardous Waste Branch (SHWB) received your modification/renewal application for the subject facility on December 14, 2009, additional submittals received November 3 and November 25, 2009, and other approved documents.

The application has been reviewed and approved. The enclosed permit is issued under the provisions of Hawaii Revised Statutes, Chapter 342H, and the Hawaii Administrative Rules, Title 11, Chapter 58.1, "Solid Waste Management Control."

Please note that your permit contains the following sections:

- Part I -- Standard Conditions
- Part II -- Special Conditions I
  - Section A. General Facility Conditions
  - Section B. Construction and Maintenance of the MSW Landfill Cells and Ash Monofill Cells
  - Section C. Acceptance Criteria

**WMH 000001**

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Mr. Joseph Whelan  
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- Section D. Provisions Related to the Operation of the MSW Landfill and Ash Monofill
  - Section E. Provisions Related to the Operation of the MSW Landfill
  - Section F. Provisions Related to the Operation of the Ash Monofill
  - Section G. Surface Water Management
  - Section H. Perimeter Gas Management
  - Section I. Leachate Management/Groundwater and Leachate Monitoring
  - Section J. Closure and Post-Closure Requirements
  - Section K. Recordkeeping and Reporting Requirements
- Part II, Special Conditions II, Materials Drop-Off Facility

The permittee(s) may appeal to the Director of Health any of the conditions to the subject permit. The appeal must be in writing and submitted to the Director of Health within twenty (20) days after the receipt of this notice.

HRS 342H-14 states that unless the submitted documents and other information secured by the DOH from the permittee(s) contain confidential information, such as secret processes or methods of manufacture, they shall be made available for inspection by the public. Please notify the SHWB within twenty (20) days of the receipt of this letter if you would like to make a claim of confidentiality. Otherwise, your entire application will be available for public inspection.

If you have any questions regarding this letter, please contact Mr. Steven Chang of the Solid and Hazardous Waste Branch at (808) 586-4226.

Sincerely,



FOR Chiyome Leinaala Fukino, M.D.  
Director of Health

Enclosure: Permit No. LF-0182-09

c: Department of Health, Clean Water Branch (w/o enclosure)

WMH 000002

**PERMITTEES:**  
**OWNER:**  
City and County of Honolulu  
**OPERATOR:**  
Waste Management of Hawaii  
92-460 Farrington Highway  
Kapolei, Hawaii 96707

**PERMIT NUMBER:** LF-0182-09  
**DATE OF MODIFICATION:** June 4, 2010  
**EXPIRATION DATE:** June 3, 2015  
**COUNTY:** Honolulu  
**LATITUDE/LONGITUDE:** 21°4'N/158°7'35"W  
**PROJECT:** Waimanalo Gulch Sanitary Landfill  
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### **SOLID WASTE MANAGEMENT PERMIT**

This solid waste management permit modification and renewal is issued under the provisions of Chapters 342H, "Solid Waste Pollution" Hawaii Revised Statutes (HRS), and Title 11, Chapter 58.1, "Solid Waste Management Control" Hawaii Administrative Rules (HAR). The above-named permittee(s) is hereby authorized to construct and to operate the facility shown on the application received December 14, 2009, additional submittals received November 3 and November 25, 2009, and other documents on file with the Department of Health (DOH) as follows:

**TO CONSTRUCT AND OPERATE:** The Waimanalo Gulch Sanitary Landfill facility. The facility is comprised of a 58.9-acre landfill for municipal solid waste (MSW) and a 20-acre ash monofill. The facility may be expanded to include a residential convenience center with recycling drop-off boxes, and additional 36.9 acres for waste (MSW and ash) disposal.

The facility may accept MSW and ash for disposal until the date specified in the associated Special Use Permit or until the landfill/monofill reaches its permitted capacity, whichever comes first. The peak daily disposal rate for MSW shall not exceed 3,500 tons per day. The daily disposal rate for ash shall not exceed 400 tons per day. In the event that an additional boiler (3<sup>rd</sup> boiler) is constructed and operational at H-Power, the ash monofill disposal rate shall not exceed 600 tons per day.

The MSW landfill is comprised of existing cells 1, 2, 3, and 4a and new cells 4b, 4c, 5 through 11, and E1 to E4. The proposed expansion includes additional MSW disposal cells E5, E6, and E7. The ash monofill is comprised of existing cells 1 through 4 and new cells 5 through 8. The proposed expansion includes an additional ash monofill in cell E8. Conceptually designed E9 may be used as either a MSW cell or an ash cell. Existing cells are those that received waste prior to October 9, 1993.

The facility will also include a residential materials drop-off facility (MDOF). The MDOF, to be located near the scalehouse, provides a location for residential generators to drop-off recyclables and mixed waste, away from the active landfill workface. Recyclables includes paper products, plastics, glass, scrap metal, and white good units. No processing shall be performed at the MDOF.

The facility also includes associated components associated with the operation and monitoring of the facility. Components include, but are not limited to, the leachate management system, stormwater management system, perimeter gas monitoring program, groundwater monitoring program, offices, equipment storage and repair areas, and parking. The total acreage of this facility is 200 acres including appurtenant operational uses.

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**IN ACCORDANCE WITH:** The permit modification/renewal application and supporting submissions received November 3, 2009, November 25, 2009, and December 14, 2009. Should there be any discrepancies in the aforementioned documents, HAR 11-58.1 and the conditions of this permit shall take precedence.

**LOCATED AT:**

92-460 Farrington Highway, Kapolei, Oahu, Hawaii.

TMK Nos. 9-2-03:072 and 073

**SUBJECT TO:**

HRS 342H; HAR 11-58.1; and Part I - Standard Conditions, Part II - Special Conditions, Sections A through K, and Special Conditions II, Materials Drop-Off Facility of this permit.

Acceptance of this permit constitutes an acknowledgement and agreement that the holder will comply with all rules, regulations, and orders of the DOH and the conditions precedent to the granting of this permit.

This permit supercedes the Solid Waste Management Permit Number LF-0054-02 issued February 20, 2008, in its entirety.



*For* DIRECTOR OF HEALTH  
State of Hawaii

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The solid waste management facility is subject to HRS Chapter 342H, *Solid Waste Pollution*, HRS Chapter 342I, *Special Wastes Recycling*, and HAR Chapter 11-58.1, *Solid Waste Management Control*, HAR Chapter 11-104.1, *Management and Disposal of Infectious Wastes*, and the following conditions:

#### **PART I - STANDARD CONDITIONS**

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee(s) and enforceable, pursuant to the authority of HRS §342H. The DOH will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee(s), its agents, employees, servants, representatives, contractors, or subcontractors. If any term or condition of this permit becomes invalid as a result of a challenge to a portion of this permit, the other terms and conditions of this permit shall not be affected and shall remain valid.
2. This permit:
  - a. shall not in any manner affect the title of the premises upon which the facility is or will be located;
  - b. does not release the permittee(s) from any liability for any loss due to personal injury or property damage caused by, resulting from, or arising out of the design, installation, construction, operation, maintenance, closure, or post-closure of the facility;
  - c. does not release the permittee(s) from compliance with other applicable statutes and regulations of the State of Hawaii or with applicable federal or local laws, regulations, or ordinances;
  - d. in no way implies or suggests that the State of Hawaii, or its officers, agents, or employees assumes any liability, directly or indirectly, for any losses due to personal injury or property damage caused by, resulting from, or arising out of the design, construction, operation or maintenance of the facility; and
  - e. shall not constitute nor be construed to be an approval of the design, construction, operation, maintenance, closure and post-closure of the facility beyond the regulatory requirements mandated by HRS §342H and HAR §11-58.1.
3. Issuance of this permit does not preclude the responsibility of the permittee(s) to obtain any and all necessary approvals and permits from the appropriate federal, state, and local agencies, including zoning clearances, prior to the start of operations. If there are any discrepancies between these permit conditions and other

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federal, state, or local laws, regulations, ordinances, or requirements, the permittee(s) shall notify the DOH in writing.

4. Unless the submitted documents and other information secured by the DOH from the permittee(s) contain confidential information, such as secret processes or methods of manufacture, they shall be made available for inspection by the public (HRS §342H-14). The permittee(s) shall be responsible for identifying, in writing, the specific information asserted to be confidential. The DOH shall review the assertion made by the permittee(s) and determine if confidentiality is indeed warranted.
5. This permit is valid only for the specific processes and operations applied for and indicated in the submitted application and additional submissions approved by the DOH. Any unauthorized deviation that affects the facility's design, operations or procedures, or which could threaten human health and the environment, from the submitted application, approved drawings, operations manual, and additional submissions or conditions of this permit may constitute grounds for modification, suspension, or revocation of this permit, and/or enforcement action by the DOH. Should there be any discrepancies between the submitted documents and the permit conditions, the permit conditions shall take precedence. A copy of the submitted application and additional submissions shall be maintained at the facility.
6. This permit is non-transferable whether by operation of law or otherwise, either from one location to another, from one solid waste disposal operation to another, or from one person to another without the written approval of the director [HAR §11-58.1-04(e)(2)].
7. This permit shall be kept at or near the construction and operation site for which the permit is issued and shall be available upon request [HAR §11-58.1-04(f)]. A request for a duplicate permit shall be made in writing to the director within ten (10) days after the destruction, loss, or defacement of this permit. A fee of \$50 shall be charged and submitted with the request [HAR §11-58.1-04(h)(3)].
8. The permittee(s) shall at all times properly operate and maintain the facility and systems of treatment, process, and control (and related appurtenances), as applicable to the facility, that are installed or used by the permittee(s) to achieve compliance with the conditions of this permit, as required by DOH rules. The facility shall be designed, constructed, and equipped in accordance with best practicable technology so as to operate without causing a violation of applicable rules and regulations.

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9. Incident Notification Requirements. The permittee(s) shall notify the DOH, in writing or facsimile, whenever there are incidents such as fire, explosion, or release of regulated material/waste, which could threaten human health or the environment (i.e., air, soil, or surface and subsurface waters). Initial notification may be by phone (586-4226 during regular business hours) or fax (586-7509) and reported within eight (8) hours, whenever possible, and no more than twenty-four (24) hours. The notification report shall be completed and submitted by an Environmental Compliance Officer or other responsible official within seven (7) calendar days (three (3) calendar days for waste disposal facilities, such as landfills and incinerators) and shall include:

- a. name, address, and telephone number of the owner and operator;
- b. name, address, and telephone number of the facility at which the incident occurred;
- c. date, time, and type of incident (i.e., fire, explosion, release, etc.);
- d. name and quantity of material(s) involved;
- e. the extent of injuries, if any;
- f. an assessment of actual or potential hazards to human health or the environment, where this is applicable;
- g. estimated quantity and disposition of recovered and unrecovered material that resulted from the incident;
- h. evaluation of the circumstances that led to the incident;
- i. steps being taken to reduce, eliminate, and prevent recurrence, including an implementation schedule; and
- j. other information or monitoring as required by the DOH

Notification requirements for releases only apply to releases of a quantity equal or exceeding the reportable quantity (RQ) listed in HAR §11-451.

10. Noncompliance Notification Requirements. If, for any reason, the permittee(s) does not comply with, or will be unable to comply with, any condition or limitation specified in the permit, the permittee(s) shall notify the DOH orally within twenty-four (24) hours followed by a written report within seven (7) calendar days (three (3) calendar days for waste disposal facilities, such as landfills and incinerators) of the verbal notification. The written report shall be completed and submitted by an Environmental Compliance Officer or other responsible official and contain the following information:

- a. description and cause of noncompliance;

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- b. period of noncompliance, including exact dates and times; and, if not corrected, the anticipated duration that the noncompliance is expected to continue;
- c. steps that will be taken to correct the area of noncompliance;
- d. steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance, including an implementation schedule; and
- e. other information or monitoring as required by the DOH.

The permittee(s) may be subject to enforcement action by the DOH, penalties, or revocation of this permit.

The use of an electronic facsimile device (FAX) for notifications is acceptable. Any data transmission or detailed explanations transmitted shall be accompanied by regular mail submittals. Failure to notify in accordance with this requirement may initiate enforcement action.

11. **Monitoring and Recordkeeping Requirements.** The permittee(s) shall comply with the following monitoring and recordkeeping requirements:

- a. Upon request, the permittee(s) shall furnish all records (e.g., transaction reports, disposal receipts, sampling, and testing results) and plans required by the DOH. The retention period for all records shall be a minimum of five (5) years unless otherwise specified in Standard Conditions, Item 11.b; however, there shall be an indefinite retention period for all records associated with any unresolved enforcement action as determined by the DOH.
- b. The permittee(s) shall retain at the facility or other location designated by this permit, records of all monitoring information (including all calibration and maintenance records and all original recordings of monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The retention period shall be a minimum of five (5) years, or longer, as may be specified in the Special Conditions, from the date of the sample, measurement, report, or application unless otherwise specified by DOH rule. The retention period shall be for the life of the facility, through closure and post-closure periods, for waste disposal facilities (such as landfills and incinerators).
- c. Records of monitoring information, if applicable, shall include:
  - the date, exact location, and time of sampling or measurements;
  - the person responsible for performing the sampling or measurements;
  - the date(s) analyses were performed;
  - the person responsible for performing the analyses;



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- analytical techniques or methods used; and
  - results of such analyses.
12. The permittee(s) shall submit complete and detailed plans and reports on existing solid waste management systems and of any proposed addition to, modification of, or alteration of any such systems that affect the facility's operations or procedures, or which could threaten human health and the environment and contain the information requested by the DOH in the form prescribed by the DOH. Any submission for permit modification shall be submitted in accordance with Standard Conditions, Item 13. The plans and reports shall be prepared by a competent person acceptable to the DOH, and at the expense of the permittee(s).
  13. Should the permittee(s) decide to modify the permit or continue operation of the solid waste facility beyond the expiration date of the permit, the permittee(s) shall submit a complete permit modification or renewal application at least one hundred eighty (180) days (one year for municipal solid waste landfills) prior to the modification or the date of permit expiration. Any submission for permit modification does not affect these permit conditions until such modification becomes final in accordance with HAR §11-58.1-04, or as approved by the DOH.
  14. The director may, in accordance with HRS §342H-6, enter and inspect the facility for the purpose of:
    - a. investigating an actual or suspected source of solid waste or other pollution;
    - b. ascertaining compliance or noncompliance with any rule, regulation, permit condition, or standard promulgated by the DOH; and
    - c. conducting tests in connection therewith (including collecting soil, water, air, ash, and any other material or samples).

The permittee(s), by accepting this permit, specifically agrees to allow authorized DOH personnel, upon presentation of credentials or other documents as may be required by law, access to the premises. The permittee(s) may conduct testing (including collecting soil, water, air, ash, and any other material or samples) simultaneously.
  15. The DOH may require the permittee(s) to conduct sampling and testing to determine the degree of pollution, if any, from the solid waste facility (including soil, water, air, ash, and any other materials or samples).
  16. When requested by the DOH, the permittee(s) shall within a reasonable time, as specified by the DOH, furnish any information required by law, which is needed to

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determine compliance with the permit. If the permittee(s) becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the DOH, such facts or information shall be submitted or corrected promptly. Upon the written request of the permittee(s), the deadline for submission of information may be extended, if the DOH determines that reasonable justification exists for the extension.

17. If the DOH determines that the permittee(s) has violated or is violating any provision of HRS §342H, HAR §11-58.1, or these permit conditions, the DOH may pursue enforcement action in accordance with HRS §342H-7, *Enforcement*; §342H-9, *Penalties*; §342H-10, *Administrative Penalties*; §342H-11, *Injunctive and other relief*, or any other pertinent rules.
18. The DOH may, on its own motion, modify, suspend, or revoke a permit if, after affording the applicant a hearing in accordance with HRS 91, the DOH determines that any permit condition, rule, or provision of HRS §342H has been violated or that such is in the public interest [HAR §11-58.1-04(d)].
19. If the governor or the director determines that an imminent peril to the public health and safety is, or will be, caused by the disposal of solid waste or any combination of discharges of other waste that requires immediate action, the governor or the director, without a public hearing, may order the permittee(s) to immediately reduce or stop the disposal, discharge, or process, and may take any and all other actions as may be necessary (HRS §342H-8).
20. This permit requires the use of Best Practicable Technology (BPT) for the construction and operation of the facility by the use of design components, monitoring and operational systems in accordance with HAR 11-58.1.

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## **PART II - SPECIAL CONDITIONS**

### **Section A. General Facility Conditions**

1. This facility may accept municipal solid waste (MSW) and ash for disposal at the MSW landfill and ash monofill until the date specified in the associated Special Use Permit (SUP) or until the landfill/monofill reaches its permitted capacity, whichever comes first. The permittee(s) shall construct and operate the facility in accordance with HRS 342H; HAR §11-58.1-1; the application received December 14, 2009, additional submissions received November 3 and 25, 2009, and approved subsequent submissions; and the conditions of this permit. Should there be any discrepancies among the aforementioned documents, HRS, HAR and permit conditions shall take precedence.
2. The maximum height of the landfill and its final grading plan shall not be higher than static and seismic stability of the landfill will allow given a static factor of safety of 1.5, no more than 6-inches of deformation, and in conformance with HAR 11-58.1-13(e). The final grades shall be in accordance with Figure 5 of the *Revised Engineering Report for Landfill Expansion*, dated November 24, 2009 prepared by Geosyntec, or approved subsequent submissions. Should there be discrepancies between the approved final grading plan and the aforementioned design standards and regulations, then the design standards and regulations shall take precedence. The permittee(s) shall notify the DOH of any discrepancies.
3. Prior to the placement of waste in the proposed expansion area of cells E5 and E6, the South Extension to the West Berm (West Berm Buttress) shall be fully constructed in accordance with Sheet 25 of the Construction Drawings Cells E5 through E8, Revision 3, dated March 16, 2010, prepared by Geosyntec. Of the proposed expansion area, the permittee(s) may only construct cells E5, E6, E7 and E8, and may only partially fill MSW cells E5 and E6 to elevation 510 feet, msl. The construction of the West Berm extension and filling of MSW cells shall be in accordance with Construction Drawings Cells E5 through E8, Revision 3 dated March 16, 2010, prepared by Geosyntec Consultants, Inc. Further construction of the West Berm or E9 and/or filling of cells E5, E6, E7, E8, E9, and other MSW cells shall not be performed until construction/fill sequencing plans are submitted and DOH approved. These construction/fill sequencing plans shall be submitted at least 60 days prior to scheduled start of construction/filling beyond what was presented in the March 16, 2010 construction drawings.
4. No construction of additional disposal cells or modification of the lateral or vertical extent of disposal cells, shall occur without written approval by the DOH. Any

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modification requests shall be submitted in accordance with Standard Conditions, Item 13, at least one (1) year prior to commencement of the proposed construction or modification. The construction and design plans shall be prepared and certified by a professional engineer, with at least five (5) years experience in designing landfills, and registered in the State of Hawaii.

5. A permanent sign shall be posted at the facility entrance identifying the facility, the hours and days of operation, and the name and address of the operator, a telephone number, and other pertinent information.
6. The permittee(s) shall operate the facility during the normal operating hours of 7:00a.m. to 4:30p.m., daily, for acceptance and disposal of MSW in the MSW landfill and 24 hours per day for the acceptance and disposal of ash in the ash monofill. In the event that the facility proposes any waste acceptance and disposal outside normal operating hours, the permittee(s) shall notify the DOH, in writing, of this event. The notification shall be provided at least twenty-four (24) hours in advance of the event. If the event is unanticipated, the permittee(s) shall provide verbal notice of the event within four (4) hours and written notification within eight (8) hours of commencement of the event. A facsimile submission of the notification is acceptable. The written notification shall specify the dates and times affected, the nature and reason for the extended operations, identification of any considerations associated with the extended operations, and controls/procedures that will be implemented to mitigate any adverse impacts of the extended operations.
7. An all-weather access road shall be maintained into and out of the facility site, through the entrance facility and to and from the working area of the landfill.
8. The permittee(s) is responsible for providing measures to control public access in accordance with HAR 11-58.1-15(f). The permittee(s) shall provide and maintain controlled access to the facility in the form of fences and gates along the site perimeter where natural barriers do not provide a means of controlling access. When natural barriers no longer control access effectively, fences and gates shall be provided to meet the requirements of controlled access. All gates shall be kept locked when an attendant is not on duty.
9. Scavenging at the facility by the general public is prohibited.
10. The facility shall have a Site Manager and Environmental Compliance Officer, who shall be knowledgeable of state solid waste laws, regulations, these permit conditions, and the permit application components, including the Site Operations Manual. The permittee(s) shall submit written updates in the event that there are

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any changes in the responsibilities or identification of the facility Site Manager or Environmental Compliance Officer.

11. Landfill operations shall be supervised at all times by an onsite individual, who has successfully completed a Manager of Landfill Operations (MOLO) training course conducted by the Solid Waste Association of North America. MOLO training certifications shall be current. Records of such training shall be placed in the operating record.
12. The permittee(s) shall comply with the financial assurance requirements in HAR 11-58.1-18 for closure of the MSW landfill, closure of the ash monofill, post-closure care, and corrective action, if required.
  - a. The permittee(s) shall include a copy of the detailed written estimates in the Annual Operating Report, required in Special Conditions, Section K of this permit.
  - b. The permittee(s) shall include documentation of financial assurance in the Annual Operating Report, required by Special Conditions, Section K of this permit.
13. Emergency Action Plan. The permittee(s) shall implement the Emergency Action Plan, as provided in the Site Operations Manual.
  - a. The permittee(s) shall provide verbal and written notification of incidents to the DOH, in accordance with Standard Conditions, Item 9 of this permit. Incidents shall also include suspected subsurface fires, and be reported based on any of the notification criteria listed in the Emergency Action Plan.
  - b. The permittee(s) shall implement Emergency Action Plans for at least the following situations:
    - i. Fires (including surface, nearby, incoming waste loads, vehicle/equipment, subsurface, etc.),
    - ii. Severe storm (2-year, 24-hour storm or greater, or continued significant rainy conditions over duration of 14 days),
    - iii. Earthquake having a magnitude 5.0 or greater that originates from a source within a 100-kilometer (60-mile) radius from the site, or an earthquake having a magnitude 7.0 or greater originating anywhere within the major Hawaiian Islands;
    - iv. Hazardous material spills at or above the Reportable Quantity,
    - v. Other emergency procedures, and trigger levels, as provided in the Emergency Action Plan.

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- c. The permittee(s) shall assess, monitor, and maintain the landfill after emergencies that may affect the integrity of the landfill, including, but not limited to, the liner system, leachate collection and control system, surface water management system, and any other affected portions of the landfill. If the acceptance and disposal of waste ceases, the permittee(s) shall submit a written evaluation of whether waste acceptance can resume. The evaluation shall be prepared by a professional engineer registered in the State of Hawaii and the Site Manager, certifying that the landfill and its associated environmental controls are functional, equivalent, or better than required, and that operation of the landfill will not cause a violation of environmental regulations. The evaluation shall also include a description of any findings and corrective actions. The facility may resume acceptance and disposal of waste upon submission of this evaluation to the DOH. The DOH may require additional assessment, monitoring, and corrective actions, as necessary to address the event.
- d. In the event of an earthquake having a magnitude 5.0 or greater that originates from a source within a 100-kilometer (60-mile) radius from the site, or an earthquake having a magnitude 7.0 or greater originating anywhere within the major Hawaiian Islands (the triggering event), the facility shall not accept and dispose of waste until a professional engineer registered in the state of Hawaii certifies the integrity and functionality of the landfill and its associated environmental controls, including, but not limited to, the liner system, leachate collection and control system, and surface water management system. In the event of an earthquake having a magnitude between 5.0 and 7.0 (a magnitude less than the triggering event) outside the 100-kilometer (60-mile) radius, the operator or site engineer shall make an immediate assessment to determine if the site should be temporarily shut down.
- i. The permittee(s) shall submit a written evaluation of whether waste acceptance and disposal can continue after a seismic activity as described above. The written evaluation shall include conclusions ascertained from the monitoring system program, required by Special Conditions, Section A, Item 13.d.ii. The evaluation shall be prepared by a professional engineer registered in the state of Hawaii and the Site Manager, certifying that the landfill, or portions of the landfill, and its associated environmental controls:
- (1) Have not been adversely affected by the earthquake and that continued operation of the landfill will not cause a violation of environmental regulations; or

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- (2) May have been adversely affected by the earthquake and that waste acceptance should temporarily cease, pending further evaluation and/or correction action.
  - ii. The permittee(s) shall maintain and monitor the inclinometer system to assess the integrity and functionality of the landfill and its environmental controls, in the event of an earthquake.
    - (1) Inclinometers were installed for seismic monitoring in the Ash Toe and E-1 berms to detect and measure the displacement at the landfill base liner in accordance with a *Workplan for Containment System Monitoring Program*, prepared by Geosyntec, and dated July 2, 2008, and approved subsequent submissions.
    - (2) For this expansion and the construction of the Western Surface Water Drain System, permittee(s) shall determine and submit construction drawings and procedures for a suitable seismic monitoring system. Construction drawings and procedures shall be provided to the DOH within ninety (90) days of permit issuance.
    - (3) The permittee(s) shall comply with the seismic monitoring and reporting requirements in the *Workplan for Containment System Monitoring Program*.
    - (4) The monitoring system program shall be considered part of the Site Operations Manual and implemented as part of this permit. If the evaluation in Special Conditions, Section A, Item 13.d.i indicates that the landfill, or its associated environmental controls, may have been adversely affected by the earthquake, the permittee(s) shall propose and implement additional evaluation methods and corrective actions. The proposal shall also include an implementation and reporting schedule. The permittee(s) may resume waste acceptance and disposal in accordance with Special Conditions, Section A, Item 13.c.
14. Alternate Waste Disposal Option. The permittee(s) shall provide a viable alternate waste disposal option in the event of an emergency, earthquake, or any other event that may preclude the acceptance and disposal of waste at the landfill. The alternate waste disposal option shall meet all applicable federal, state, and local laws and regulations. The option shall be available until assessment of the landfill integrity and environmental controls, such as the liner system, and any associated corrective actions are successfully completed, as required by Special Conditions, Section A, Item 13. The permittee(s) shall submit written updates to the Alternate Waste

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Disposal Option, dated March 20, 2008, on an annual basis. The updates shall be included in the Annual Operating Report.

#### **Section B. Construction and Maintenance of MSW Landfill Cells and Ash Monofill Cells**

1. The permittee(s) shall maintain the integrity of the liner system and leachate collection and control system as designed and constructed, or implement equivalent or better alternative environmental controls, as approved by the DOH.
  - a. Existing MSW landfill cells 1, 2, 3, and 4a (partial) (installed prior to 1991)
    - i. The bottom liner and side slope liners consist of a liner system comprised of thirty-six inches of clay soil.
    - ii. The drainage layer consists of 12 inches of drain rock.
  - b. New MSW landfill cell 4b, in accordance with Site Redevelopment Plans, prepared by SEC, Donahue, dated June 4, 1992.
    - i. The bottom liner consists of a 60-mil HDPE liner on top of 24 inches of compacted clay. On top of the 60-mil HDPE liner is a 16-ounce per square foot geotextile.
    - ii. The drainage layer consists of 12 inches of drainage gravel, on which a 10-ounce per square yard geotextile is placed.
  - c. New MSW landfill cells 4a (partial) and 4c (partial), in accordance with Final Construction Quality Assurance Report, prepared by RUST Environment & Infrastructure, Inc., dated August 12, 1996.
    - i. The bottom liner consists of a 60-mil HDPE geomembrane on top of a clay liner of  $5 \times 10^{-9}$  cm/sec maximum permeability. A 16-ounce per square yard nonwoven geotextile placed over the geomembrane.
    - ii. The drainage layer consists of 12 inches minimum drainage rock, on which a 16-ounce per square yard nonwoven geotextile is placed.
  - d. New MSW landfill cell 4c (partial), in accordance with Final Construction Quality Assurance Reports, prepared by RUST Environment & Infrastructure, Inc., dated December 1997.
    - i. The bottom liner consists of a 60-mil HDPE geomembrane over a clay liner of  $5 \times 10^{-9}$  cm/sec maximum permeability.
    - ii. A 16-ounce per square yard nonwoven geotextile over the geomembrane.
    - iii. The drainage layer consists of 12 inches of drainage rock, on which a 16-ounce per square yard nonwoven geotextile is placed.



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- e. New MSW landfill cells 5 through 7, in accordance with Quality Assurance Report – Cell 5 (upper) and Cells 6 and 7 (partial), prepared by Harding Lawson Associates, dated July 8, 1994.  
New MSW landfill cells 8 and 9, in accordance with Construction Quality Assurance Remainder of MSW Cells 8 and 4c, and MSW cell 9, prepared by RUST Environment & Infrastructure, Inc., dated December 1997; and Construction Quality Assurance Report for Subcell E-2D, MSW Cells 8 and 9 Remainder, prepared by Earth Tech, Inc., dated February 2006.  
New MSW landfill cell 10, in accordance with Construction Quality Assurance Report for Cell 10, prepared by A-Mehr, Inc., dated January 20, 2000.
  - i. The bottom liner consists of a 60-mil HDPE geomembrane on top of a clay liner of  $5 \times 10^{-9}$  cm/sec maximum permeability.
  - ii. A layer of cushioning 16-ounce per square yard geotextile over the geomembrane.
  - iii. The drainage layer consists of a minimum of 12 inches of drainage rock, on which another 16-ounces per square yard geotextile is placed.
- f. New MSW Cell 11, in accordance with Figure 20, Engineering Report for Grading Plan Modification December 2005, Revision 3, prepared by GeoSyntec Consultants, Inc., dated February 8, 2007.
  - i. The bottom liner consists of a 60-mil HDPE geomembrane on top of a clay liner of  $5 \times 10^{-9}$  cm/sec maximum permeability.
  - ii. A layer of cushioning 16-ounce per square yard geotextile over the geomembrane.
  - iii. The drainage layer consists of a minimum of 12 inches of drainage rock, on which another 16-ounces per square yard geotextile is placed.
- g. Existing MSW ash monofill cells 1 through 4, in accordance with Construction Quality Assurance Reported for Ash Monofill Base Liner Installation, Phase I, dated March 15, 1990.
  - i. The bottom liner and side slope liner consist of a composite liner system comprised of a 60-mil HDPE layer on top of thirty-six inches of clay soil with maximum permeability of  $1 \times 10^{-7}$  cm/sec.
  - ii. The drainage layer consists of a minimum of 0.2-inch geonet with a 16-ounce geotextile protective layer.
- h. New ash monofill cells 5 through 8, in accordance with Final Construction Quality Assurance Reports, prepared by RUST, dated August 14, 1995 and

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October 1998. Final Construction Quality Assurance Report Remainder of Ash Cell 7 and Ash Cell 8, prepared by A-Mehr, Inc., dated October 8, 1998.

- i. The alternate bottom liner consists of a 60-mil HDPE layer on top of a minimum one pound per square foot geosynthetic clay liner of maximum permeability of  $5 \times 10^{-9}$  cm/sec.
  - ii. The drainage layer consists of a minimum of 0.2-inch geonet with a 16-ounce geotextile protective layer.
- i. Lateral expansion cells E-1 and E-2, in accordance with Construction Quality Assurance Reports prepared by A-Mehr, Inc., dated August 2003 and August 2004. Lateral expansion cell E-3 in accordance with the Construction Quality Assurance Report prepared by Earth Tech, Inc., dated May 2007. Details of this system are shown in construction record drawings included in Construction Quality Assurance Reports for Cells E-1 (August 2003, prepared by A-Mehr, Inc.), Cell E-2A (August 2004, prepared by A-Mehr, Inc.), Cell E-2B (November 2004, prepared by Earth Tech, Inc.), Cell E-2C (September 2005, prepared by Earth Tech, Inc.), Cell E-2D (February 2006, prepared by Earth Tech, Inc.), and Cell E-3 (May 2007, prepared by Earth Tech, Inc.).
- i. The base liner consists of 60-mil single-sided textured HDPE geomembrane on top of an internally reinforced geosynthetic clay liner having a maximum permeability of  $5 \times 10^{-9}$  cm/sec.
  - ii. The drainage layer consists of 12 inches of drain rock on top of a 16-ounce per square yard cushion geotextile. On top of the drain rock is a 16-ounce per square yard cushion geotextile.
- j. The lateral expansion cell E-4 shall be maintained in accordance with the *Project Manual Cell E4 and West Berm (Remainder) Construction*, prepared by GeoSyntec Consultants, Inc., dated December 2006, and specified constructed components identified in the *Construction Quality Assurance Report for Cell E4*, dated January 2008.
- i. Due to the possible presence of groundwater seeps, the permittee(s) shall maintain the underdrain system consisting of gravel-filled trenches excavated into the subgrade. The subdrains shall be maintained in accordance with a letter report by A-Mehr, Inc., Geologic Investigation and Subdrain Design, dated June 3, 2003.
  - ii. The base liner consists of 60-mil single-sided textured HDPE geomembrane on top of an internally reinforced geosynthetic clay liner having a maximum permeability of  $5 \times 10^{-9}$  cm/sec.
  - iii. The drainage layer consists of 12 inches of 2-inch minus drain rock on top of a 16 oz/yd<sup>2</sup> cushion geotextile. On top of the drain rock is a

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layer of 16 oz/yd<sup>2</sup> cushion geotextile. The operations layer of 24 inches of 2-inch minus crushed rock was placed above the 16 oz/yd<sup>2</sup> geotextile.

- iv. The side slopes are lined and do not exceed a slope of two to one (horizontal: vertical). The liner consists of 60-mil single-sided textured HDPE geomembrane on top of a layer of internally reinforced geosynthetic clay liner. The side slopes are not required to have the gravel drainage layer beyond 10 feet from the bottom of the cell. The operations layer on side slopes consists of a minimum of 24 inches of soil material.

- 2. Lateral expansion cells E5 through E8 shall be constructed in accordance with Geosyntec Consultants, Inc., *Construction Drawings, Cells E5 through E8, Revision 3*, dated March 16, 2010.

- a. Subdrain shall be installed in Cell E5 as a continuation of the subdrain installed in preceding cells E1 through E4, in accordance with Note 9 on Sheet 3 of the construction drawings.
- b. Soil cushion under base HDPE geomembrane shall be 12-inches minimum thickness of on-site soil having a maximum particle diameter of ¼-inch, or as approved by the design engineer.
- c. The base liner shall consist of a primary 60-mil double-sided textured HDPE geomembrane on top of an internally reinforced geosynthetic clay liner (GCL), which overlies a 40-mil double-sided textured HDPE geomembrane backing.
- d. The drainage layer shall consist of minimum 12 inches of gravel (maximum size 1 inch) overlying a 16 oz/yd<sup>2</sup> (minimum) non-woven geotextile cushion. On top of the drainage layer shall be a 10 oz/yd<sup>2</sup> (minimum) non-woven geotextile filter. Over the geotextile filter shall be minimum 24 inches of operations layer, consisting of 2-inch minus soil.
- e. The 12-inch gravel layer is required to extend 10 feet vertically up the side slopes. Beyond this elevation on side slopes the filter geotextile need not be included, and the operations layer can be in contact with the cushion geotextile.
- f. This base liner design shall be used in both the MSW and ash monofill cells.
- g. The operations layer shall be 24-inches of 2-inch minus drain rock having a hydraulic conductivity of at least  $1 \times 10^{-2}$  cm/sec.
- h. The first layer of solid waste on the bottom and side slopes shall consist of a minimum thickness of 5 to 10 feet of select waste that is screened for the removal of objects having a dimension greater than 24 inches to prevent puncture or displacement damage. As an example, residential waste may be directly placed and spread on the operations layer, visually inspected, and

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objects greater than 24 inches shall be removed. The thickness of the select waste layer shall be based on the size/weight of the compactor and as defined in the Site Operations Manual.

- i. Only tracked, low ground pressure bulldozers or landfill equipment with rubber wheels shall be used on the operations layer. The select waste layer shall not be compacted and a point load compactor shall not be operated on the select waste layer.
  - ii. The permittee(s) shall also comply with the select waste placement procedures provided in the Site Operations Manual.
  - iii. The permittee(s) shall document select waste screening and placement. At a minimum, documentation shall include verification by the Site Manager or Environmental Compliance Officer and photo documentation. The permittee(s) shall maintain a copy of select waste documentation at the facility and submit a copy of the documentation to the DOH upon completion of the select waste layer.
- i. For the ash monofill Cell E8, the permittee(s) shall conduct an evaluation and potentially add additional separation distance between the ash and base liner by increasing the thickness of the operations layer to ensure liner protection from potential elevated ash temperatures. Hydraulic separation shall be provided between the MSW and ash monofill cells. The modified design shall be provided within 60 days after permit issuance.

### 3. CONSTRUCTION OF WESTERN SURFACE WATER DRAINAGE SYSTEMS.

- a. The construction of the western bypass channel and temporary drainage system shall be in accordance with the construction drawings, titled *Western Surface Water Drainage Project*, prepared by GEI Consultants, Inc., and dated January 2010. These drawings also contain the construction requirements for the temporary storm water drain system, which will include installing a 36-inch HDPE pipe along the bottom of Cell E6 under the base liner and construction of a temporary diversion berm in Cell E7.
- b. During construction and prior to disabling of existing storm water drain conveyances, permittee(s) shall pre-stage 6-mil or thicker geomembrane sheet, pumps, and any other material and equipment in quantities and sizes needed to control and direct storm water that flows into Cell E6, E4 and 11.
- c. The installation of the temporary storm drain piping shall be completed and tested prior to start of cell liner construction.
- d. Work shall be sequenced to maintain storm drain capability to handle 24-hour, 25-year storm flows at any given time.

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**4. CONSTRUCTION OF THE LANDFILL SURFACE WATER DRAINAGE SYSTEM.**

- a. The landfill surface water drainage system consists of the Eastern Surface Water Drainage System, which covers the surface water drainage on the eastern side of the landfill, and the surface water management plan, which is an annual report of the surface drainage configurations in place at that time. For the western side of the landfill, the surface drainage configuration will need to be changed as the configuration of the west berm and MSW fill levels change. Surface drainage configuration shall be reported annually in the Surface Water Management Plan.
- b. The Eastern Surface Water Drainage System shall be constructed in accordance with drawings titled *Eastern Surface Water Drainage Project, 2011 Partial Final Closure*, dated October 2009 and prepared by GEI Consultants, Inc. These drawings cover construction of Phase I of the Eastern Surface Drainage System, which includes conveyance piping from the outlet at the sedimentation basin to a temporary inlet structure located on the eastern edge of the landfill near the junction of cells E2 and E3.
- c. The permittee(s) shall submit updated Eastern Drainage System design drawings to accommodate stormwater runoff associated with new cells as they are being constructed. The updated drawings shall be submitted at least sixty (60) days prior to construction. Eastern drainage systems are to be constructed while maintaining storm drain capability to handle 24-hour, 25-year storm flows.

**5. EXTENSION OF MSW 4B SUMP LEACHATE DISCHARGE RISER.**

- a. The permittee(s) shall maintain the MSW leachate collection sump (4B-cell sump) leachate discharge riser and associated pumps and instrumentation. The sump leachate discharge riser was constructed in accordance with design drawing titled, *Sump 4B Riser Replacement*, by Sanborn, Head and Associates, Inc., dated July 26, 2007, and approved subsequent submissions. The installation was documented in report prepared by Sanborn, Head & Associates, Inc., titled *Cell 4B Leachate Sump Riser and Pump System Installation Report* dated January 2008.
- b. Subsequent extension of the riser as MSW lifts are added shall be accomplished in accordance with the *WORK PLAN: CELL 4B LEACHATE SUMP RISER EXTENSION* included as Attachment 9 of WMH's response letter dated November 2, 2009, which stated that this work plan would be

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added to the Engineering Report. Operator shall ensure that as lifts are placed, at least ten (10) feet of clearance around the riser is maintained to preclude lateral forces or damage occurring due to operation of heavy equipment. Gravel shall be placed in the space between the riser and the surrounding MSW lifts and compacted in a manner that will not increase any potential damaging forces on the riser pipe. Immediately following the installation of a riser extension, the permittee(s) shall reestablish an elevation control point as required by Special Conditions, Section I, Item 4. Compliance with this requirement shall be included in the documentation of riser extension work. The Solid Waste Section shall be notified at least one week prior to scheduled commencement of work to add extensions to the riser.

6. The permittee(s) shall submit any significant proposed changes affecting the design or structural integrity of the installed liner system or leachate collection system, in writing, at least one hundred eighty (180) days prior to commencement of the proposed change. Regular maintenance procedures, such as replacing broken valves with a similar valve, do not require DOH approval. Any proposed changes shall be comparable or improved in its capability to protect human health and the environment. At a minimum, the written proposal shall include:
- a. Identification of affected cells;
  - b. Reason for the proposed change;
  - c. Engineering design;
  - d. Point of Compliance Evaluation;
  - e. Implementation schedule; and
  - f. Other pertinent information.

The DOH may also require additional information to evaluate the request. If the proposed changes require a modification to this permit, a modification application shall be submitted in accordance with Standard Conditions, Item 13.

7. In accordance with a Geosyntec design memorandum dated February 18, 2010, regarding the buttress installation for the West Berm, interface friction testing shall be performed for the base and cover liners delineated in a new Section 02800 of the Technical Specifications for Cells E5 through E8. As such, the liner interface strengths for the new MSW and Ash cells shall be verified prior to all base liner and closure cover construction, with direct shear tests conducted under peer-reviewed methods and under the general guidance of ASTM D5321 and D6243. Shear strengths shall meet or exceed the strength parameters used in the stability analyses and shall be approved by a licensed engineer prior to start of construction. These

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test results shall be documented in the construction quality assurance (CQA) reports for cell construction.

8. Installation of any geosynthetic liner shall be performed by an experienced installer who has installed a minimum of 500,000 square feet of similar type liners or shall be performed under the supervision of the manufacturer. An experienced QA/QC landfill inspector with at least five (5) years of experience in landfill CQA responsible to a professional engineer shall observe liner installation and grade elevations. The permittee(s) shall notify the DOH, in writing, five (5) days prior to any liner installation work.
9. The permittee(s) is responsible for obtaining the services of a registered land surveyor who shall provide a minimum second order of accuracy on: triangulation, traverse, leveling and baseline measurements of the base grade as shown on the approved drawings, leachate lines, liner elevations, and other features used to determine compliance with the approved drawings. Prior to liner placement, the liner contractor and installer shall certify the base grade in writing. This written certification shall be included in the CQA report described in Special Conditions, Section B, Item 12.
10. The permittee(s) shall retain a professional engineer registered in the state of Hawaii for the supervision of the CQA requirements of this project, and upon the completion of all construction elements (west berm buttress, west berm extension, and liner/leachate systems), the engineer shall submit a CQA report to the DOH as to the complete conformity of construction to the plans and specifications as approved. The CQA report is described in Special Conditions, Section B, Item 12.
11. The permittee(s) shall submit a CQA report after completion of the West Berm extension, as presented in *Construction Drawings, Cells E5 through E8*, Revision 3, dated March 16, 2010.
12. The permittee(s) shall prepare and submit a CQA report to the DOH.
  - a. The CQA report shall be submitted to the DOH at least thirty (30) days prior to proposed placement of the waste in the cell.
  - b. A professional engineer, with at least five (5) years experience in designing landfills, and registered in the State of Hawaii shall review the inspections and test records for each sector as certified by the liner manufacturer or manufacturer's representative and the QA/QC engineer. The professional engineer shall also verify that the buttress, berm, bottom liner, and leachate

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collection system have been installed in accordance with the plans as approved by the DOH.

- c. The CQA report shall also include the following, as applicable:
- i. A map of each sector showing panel layouts as installed;
  - ii. A letter of certification signed by the QA/QC engineer stating that all weld test results and vacuum or pressure testing of all welded seams were visually observed;
  - iii. Liner inspection reports;
  - iv. QA/QC testing procedures;
  - v. Laboratory's analyses;
  - vi. As-built and survey drawings documenting the buttress, berm, and cell construction, including the bottom and top of sump elevations, location and elevation of base grades, liner system, and leachate collection system;
  - vii. Provide documentation to show that panels were properly joined within the cell, as well as with liner systems in adjacent cells;
  - viii. Provide documentation and as-built drawings to show supporting berms constructed beneath areas where new liner systems are connected with previously installed liner systems;
  - ix. Provide documentation and as-built drawings of anchor trenches and berms (temporary and permanent) located around each cell;
  - x. Provide documentation and description of any temporary stormwater control measures implemented;
  - xi. Identify any deviations from the construction plan, reason for the deviation, and affects on the stability and integrity of the design. Any deviations shall be comparable or improved in its capability to protect human health and the environment; and
  - xii. Written certification by a professional engineer that the buttress, berm, liner system, leachate collection system, and any other associated items were installed in accordance with the approved documents.
13. No solid waste shall be disposed of into any new cell or sector until an experienced professional engineer certifies completion of construction in accordance with approved drawings and the DOH approves the CQA report submitted in accordance with Special Conditions, Section B, Item 12. The permittee(s) shall coordinate the inspection of each new cell or sector by the DOH, with the presence of the CQA engineer and on-site facility operator.
14. The permittee(s) shall maintain the main stability berm at the toe of the landfill in accordance with the construction drawings and sequencing plan titled Ash Area Toe Berm by GeoSyntec Consultants, Inc., Revision 3 dated 13 June 2005, contained in



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the Engineering Report for Grading Plan Modification December 2005, Revision 3, dated February 8, 2007; as modified by the Construction Quality Assurance Report for Ash Toe Berm and E-1 Berm Construction prepared by Earth Tech, Inc., dated September 2007.

15. The permittee(s) shall maintain the E-1 Berm in accordance with the construction drawings E-1 Area Toe Berm prepared by GeoSyntec dated March 2005, contained in Project Manual, Ash Toe and E-Cell Berms, dated March 2005; as amended by Construction Quality Assurance Report for Ash Toe Berm and E-1 Berm Construction prepared by Earth Tech, Inc., dated September 2007, or approved subsequent submissions.
16. The initial phased construction of the West Berm shall be maintained in accordance with CQA Report for the West Berm Construction (Interim) dated February 2010 and prepared by AECOM Technical Services, Inc.
  - a. The construction of the west berm buttress and the extension of the West Berm shall be done in accordance with *Construction Drawings Cells E5 through E8* by Geosyntec Consultants, Inc., Revision 3, dated March 16, 2010. Construction of the buttress shall be accomplished prior to any further extension of the West Berm and addition of MSW into the expansion cells E5 and E6.
  - b. Extension of the West Berm shall be sequenced with filling of Cells E5 and E6 up to elevation 510 feet, msl in accordance with the Construction Drawings Cells E5-through E8. No additional waste shall be placed until construction drawings for further extension of the West Berm and filling of the expansion cells is reviewed and approved by the DOH. Submission of the sequencing plans shall be provided to the DOH at least 60 days prior to scheduled start of work.
17. The permittee(s) shall submit construction drawings and procedures to install and implement a seismic monitoring system for the expansion cells E5 through E8 and the Western Surface Water Drainage System. Documents shall be submitted to the DOH within 90 days of permit issue.
18. The permittee(s) shall install and maintain grade survey control markers to delineate the boundaries and elevations of the MSW landfill areas and ash monofill, in sufficient number to demonstrate compliance with permitted grades.

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**Section C. Acceptance Criteria**

1. The permittee(s) is authorized to accept for disposal, solid wastes, as defined in HAR 11-58.1-03.
2. The permittee(s) shall implement the Waste Acceptance & Hazardous Waste Exclusion Program, as provided in the Site Operations Manual and the following conditions.
  - a. The permittee(s) shall screen waste, prevent unacceptable waste from entering the facility, and remove unacceptable waste if it enters the facility.
  - b. The permittee(s) shall post a sign on the property that lists unacceptable wastes.
  - c. The permittee(s) shall conduct random visual surveillance of mixed commercial loads (not inclusive of loads known to only contain single source-separated materials, such as sludge, ash, fish waste, and auto shredder residue), at least twice per day, to spot check for unacceptable wastes. In the event that H-Power is diverting waste to the facility, or the facility is receiving more than 2,500 tons per day, random visual surveillance shall be conducted on commercial loads at least four times per day. The permittee(s) shall document findings on the Load Check Data Sheet.
  - d. The permittee(s) shall maintain and utilize video surveillance equipment in the scalehouse to visually screen the contents of each load.
  - e. The bulldozer/compactor operators at the active workface shall visually screen the contents of each load and remove unacceptable waste.
  - f. If unacceptable waste is observed, the permittee(s) shall reject the load. If the waste has been unloaded, the permittee(s) shall separate the unacceptable waste, move it away from the active workface, and manage it in accordance with Special Conditions, Section C, Item 3.
  - g. Operators shall receive training on visual surveillance and unacceptable waste handling procedures set forth in the Site Operations Manual. Training shall be attended at least once per year, or more frequently as needed to ensure compliance with the facility procedures.
  - h. The permittee(s) shall maintain records of random inspections on the Load Check Data Sheets and personnel training.
  - i. Unacceptable waste is defined as:
    - i. Regulated hazardous waste, as defined in HAR 11-261 through 268;
    - ii. Radioactive waste, which shall be managed in accordance with HAR 11-58.1-64;
    - iii. Polychlorinated biphenyl (PCB) waste, as defined in 40 CFR Part 761;

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- iv. Untreated infectious waste, excluding infectious waste generated within the household, in accordance with HAR 11-58.1-53;
  - v. Bulk or noncontainerized liquid waste, except as provided in HAR 11-58.1-15(i);
  - vi. Containers holding liquid waste, except as provided in HAR 11-58.1-15(i)(2);
  - vii. Commercial loads containing >25% greenwaste and household loads containing > 50% greenwaste, in accordance with HAR 11-58.1-65(b);
  - viii. Scrap automobiles, white goods, and whole motor vehicle tires, in accordance with HAR 11-58.1-65(c);
  - ix. Lead acid batteries, in accordance with HRS 342I;
  - x. Compressed gas tanks; and
  - xi. Other unacceptable wastes listed in the Site Operations Manual.
3. Should unacceptable waste be identified at the facility, the permittee(s) shall separate the waste, manage, transport, and recycle/dispose of it in accordance with the Site Operations Manual and applicable laws and rules. Unacceptable waste identified at the facility shall not be disposed of at the facility.
- a. Unacceptable waste shall also be transported from the facility prior to posing a nuisance, health, or safety concern.
  - b. Unacceptable waste shall be transported to a permitted solid waste management facility allowed to accept the waste, or out-of-state recycling/disposal facility.
  - c. The permittee(s) shall maintain a daily log of unacceptable waste turned away from the facility or separated from disposal, including date, hauler, waste type, estimated quantity, and destination.
  - d. The permittee(s) shall notify the DOH, in writing, within 24 hours or the next working day of the identification of hazardous or PCB waste. The notification shall include the date and time of incident, origin of the waste, hauler/generator, description and quantity of waste, actions that will be taken to manage the waste at the site, and actions that will be taken to remove the waste from the premises. The permittee(s) shall also provide written notification, including a copy of the associated manifests, within seven (7) days of removal of the waste from the facility.
4. The permittee(s) shall implement the Radioactive Waste Exclusion Plan, as provided in the Site Operations Manual. All incoming loads shall be screened to prevent the acceptance of radioactive wastes, excluding known loads of radioactive waste from H-Power. Radioactive wastes shall be managed in accordance with HAR 11-58.1-64. In the event that a radioactive load is identified, the facility shall

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follow the procedures in the Radioactive Waste Exclusion Plan. The permittee(s) shall complete and submit a Radiation Monitoring Report, documenting the date, time, actions taken, and resolution of the event. Loads of radioactive waste from H-Power shall be inaccessible to the public and managed in accordance with the Radioactive Waste Exclusion Plan.

5. The permittee(s) shall implement the Special Waste Acceptance Program, as provided in the Site Operations Manual.
  - a. The permittee(s) shall pre-approve special wastes, prior to acceptance at the facility.
  - b. The permittee(s) shall maintain written documentation and implement special handling procedures associated with each type of special waste. The procedures shall be based on the physical, chemical or pertinent characteristics of the special waste.
  - c. Special waste means any solid waste, which because of its source or physical, chemical, or biological characteristic, require special consideration for its proper processing or disposal, or both. Special waste includes, but is not limited to:
    - i. Asbestos;
    - ii. Semi-solid wastes including:
      - (1) water separation, car and equipment wash wastes;
      - (2) sewage sludge;
      - (3) underground storage tank and other sludge;
    - iii. Off-specification and outdated products;
    - iv. Bag house dusts;
    - v. Inorganic filter cakes;
    - vi. Treated infectious waste;
    - vii. Dead animals and offal;
    - viii. Contaminated Materials including:
      - (1) Contaminated soils and debris, including: resins and chemical debris; petroleum and other contaminated soils; and petroleum fuels (i.e., used oil, diesel, jet fuel, gasoline) and debris
      - (2) Sandblast grits;
      - (3) Wastes that are toxic in nature, such as insecticides, poisons, or radioactive materials (provided that they are not regulated under another authority such as RCRA Subtitle C, TSCA that requires disposal other than at a permitted MSW landfill); and
      - (4) Other solid waste, which may be accepted for disposal such as contaminated industrial/commercial waste and non-TSCA

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regulated PCB waste, provided such materials are not regulated hazardous waste; and

- ix. Other special waste listed in the Site Operations Manual.
- d. The permittee(s) shall approve Contaminated Materials (as defined in Special Conditions, Section C, Item 5.c.viii), on a case-by-case basis, prior to acceptance at the facility.
  - i. The permittee(s) shall implement the Procedures for the Acceptance of Contaminated Material. These procedures shall be implemented for all contaminated materials defined in Special Conditions, Section C, Item 5.c.viii.
  - ii. A notice of Contaminated Material Approval shall be submitted to the DOH prior to acceptance at the facility. The notice shall include approval from both the owner and operator of the facility. The use of facsimile submissions is acceptable. The notice shall include: acceptance date(s), quantity and description of waste, origin of waste, waste profile sheet/approval manifest; proposed management of contaminated material (use as daily cover or disposal as void space fill) and any special management and handling procedures.
- e. All documentation shall be maintained at the facility.

**Section D. Provisions Related to the Operation of the MSW Landfill and Ash Monofill**

1. The permittee(s) shall implement the Site Operations Manual received December 2009, and approved subsequent revisions. The DOH may periodically require revisions to the Site Operations Manual. The contents of the Site Operations Manual shall address permit requirements and be implemented to ensure compliance. Any significant changes to the Site Operations Manual require approval from the DOH. Depending on the scope of the change, a permit modification may also be required. If there are discrepancies between the Site Operations Manual and these permit conditions, the permit conditions take precedence.
2. **User Population.** The permittee(s) shall maintain a list of the types of users for operator reference and regulatory review. In the event that the user population, or screening and review process to identify legitimate user changes, the permittee(s) shall submit a written update of such change. The written update shall propose adjustments to the screening and review process, as appropriate, to respond to the changes in the user population.
3. **Air Criteria.** The permittee(s) is responsible for obtaining permits and maintaining compliance with any state or federal Clean Air regulations. Open burning of solid waste, except for debris from emergency-cleanup operations, is prohibited. Open

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burning of debris from emergency cleanup operations shall not commence without prior approval from the DOH.

4. **Climatic Information.** Climate information shall be collected on a daily basis and shall include information on daily rainfall, solar radiation, evaporation, wind speed and direction, humidity, temperature, and other applicable meteorological data, as applicable, for use in modeling evapotranspiration and leachate generation with the HELP Model at the landfill and evaluating litter/odor control. The permittee(s) shall also monitor and record daily windspeed and direction at the active workface of the MSW landfill. The permittee(s) shall minimize any weather equipment downtimes. In the event that the equipment is not operational, the permittee(s) shall maintain a record of the affected date(s), reason, and actions taken. Data shall be provided to the DOH upon request.
5. **Program for Regular Training.** The permittee(s) shall provide training to landfill operators annually, or more frequently, as needed, to ensure that the operators are familiar with the Site Operations Manual and these permit conditions. Training presentations shall be presented by a Site Manager or Environmental Compliance Officer. Records of training shall be maintained.
6. **Queuing.** The permittee(s) shall provide adequate on-site queuing for a minimum of 15 waste delivery vehicles at the scalehouse area. The permittee(s) shall also make reasonable best efforts to prevent waste vehicles from idling on the highway.
7. **Mud and Dust Prevention Program.** The permittee(s) shall provide measures for minimizing the tracking of mud onto public roads, and the generation of dust on site.
  - a. The mud prevention measures shall include the installation and maintenance of wet weather pads and access routes constructed of material (such as cold plane material or asphalt/concrete rubble) that will minimize the exposure of excessive muddy conditions. A wet weather deck shall be present to allow for safe disposal of MSW during wet weather or muddy conditions. The permittee(s) shall maintain a steel rumble strip on the main access road during wet weather and muddy conditions. If mud is tracked offsite, the permittee(s) shall clean up the tracked mud off the property and implement additional mud prevention measures. Possible measures that may be implemented include a drive-through tire wash, and/or wash pad.
  - b. Recycled aggregate, asphalt and/or concrete used outside the limits of the waste footprint or used to control or direct stormwater shall be uncontaminated and meet the definition of inert fill in HRS 342H-1. No wet

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weather area for disposal, temporary or otherwise, shall occur outside the waste footprint.

- c. The dust prevention measures shall include, but are not limited to, applying water spray to roads and active workface throughout the day, as needed to control dust. The permittee(s) shall also prevent dust from inactive areas by applying water, and planting and maintaining vegetation on intermediate cover on completed fill slopes.
- d. If measures do not adequately minimize the tracking of mud on to public roads or generation of dust, the permittee(s) shall implement additional mud prevention and dust control measures.

8. **Disease Vector Control.** The permittee(s) shall prevent or control on-site populations of disease vectors.

- a. The permittee(s) shall implement the Vector Control Plan, as provided in the Site Operations manual, and these permit conditions.
- b. If vectors, or signs or indicators of vector attractants are identified, the permittee(s) shall prepare and implement a vector-specific control/prevention plan to eradicate the vectors and prevent future recurrences.
  - i. The plan shall include a more frequent inspection schedule, to ensure the plan was successful in eradicating vectors and preventing future recurrences. The increased schedule shall be implemented for at least three (3) months, or other approved time period, after the vector issue has been resolved.
  - ii. The permittee(s) shall submit a copy of the plan to the DOH, as an update to the Site Operations Manual, within thirty (30) days of identifying vectors or vector attractants.
  - iii. The permittee(s) shall submit a report, documenting the actions taken at the site and results of such actions. The report shall be submitted within thirty (30) days of completion of the plan.
- c. If vector control measures are not adequate, the permittee(s) shall implement additional vector control measures.

9. **Litter Control.** The permittee(s) shall confine litter to the working face area and prevent litter from leaving the facility. The permittee(s) shall implement the Litter Control Plan, as provided in the Site Operations Manual and these conditions. During the course of the working day of operation, all windblown material shall be collected and be properly disposed. At a minimum, the collection measures shall include:

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- a. The use of litter screens/fences within 100 yards downwind of the active workface (primary fencing).
  - b. The use of additional litter screens/fences in secondary control positions.
  - c. The presence of a truck clean-out area near the active workface, with litter screens/fences and disposal receptacles for truck clean-out. If the truck clean-out area is within 100 feet of a downwind primary fencing area, additional screens/fences shall only be required if the primary and secondary fencing areas are inadequate.
  - d. Cleaning of litter screens/fences (primary, secondary, and truck clean-out area screens/fences) throughout the day. At the end of the operating day, all litter shall be removed from all litter screen/fences.
  - e. Additional litter cleanup of all impacted areas in the event of a major windstorm or other incident in which litter escapes the normal litter containment systems.
  - f. Documentation of the number of personnel picking up litter, number of bags collected, and maximum wind speed for each day.
  - g. If litter control measures are not adequate, the permittee(s) shall implement additional litter control measures.
10. **Temporary Storage.** Stockpiled materials within the landfill waste boundary shall be limited to cover material on the ash monofill and cover material, gravel for roads/wet weather, liner, pipe, and equipment parking on the MSW landfill, except as provided in Special Conditions, Section D, Item 11.
- a. The volume of material storage stockpiles shall not exceed a limit of 30 days capacity. If temporary storage exceeds or is anticipated to exceed 30 days, the permittee(s) shall construct temporary berms or implement other measures to prevent erosion of the stored material and allow for proper surface water flow.
  - b. Cover material stored on the ash monofill shall be placed atop at least 24 inches of intermediate cover material and shall not impede surface water flow. Temporary berms, containment measures, and access to stockpiles at the ash monofill shall also be placed atop at least 24 inches of intermediate cover material.
  - c. Cover material, gravel for roads/wet weather, liner, pipe, and equipment parking on the MSW landfill shall be placed atop at least 12 inches of intermediate cover material and shall not impede surface water flow. Temporary berms, containment measures, and access to stockpiles at the MSW landfill shall also be placed atop at least 12 inches of intermediate cover material.



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- d. The permittee(s) shall collect pot hole samples to verify the depth of intermediate cover prior to placement of the material storage stockpiles, temporary berms, or other containment measures. Documentation of depth, as well as periodic inspections, shall be provided to the DOH upon request. Periodic inspections shall be performed on a monthly basis during material storage and weekly when significant activity is ongoing.
  - e. Material storage stockpiles shall not exceed permit grades if storage is for greater than 30 days, unless a professional engineer certifies that the proposal will not affect the integrity of the landfill. The certification shall include calculations used in the determination. The permittee shall also demonstrate that the maximum storage height has adequate vertical clearance from overhead power lines, as specified by the power line owner.
11. The permittee(s) may submit written requests for the temporary storage of other materials or other activities on the MSW landfill and ash monofill. The requests shall be limited to materials intended for use within the waste disposal area of the MSW landfill or ash monofill and activities associated with landfill operations.
- a. The written request shall be submitted at least fourteen (14) days prior to the proposed activity. At a minimum, the request shall include provisions to meet or exceed the following requirements:
    - i. The volume of material shall not exceed a limit of 30 days capacity and the duration of activities shall not exceed 30 days. If storage/activities exceeds or is anticipated to exceed 30 days, the permittee(s) shall construct temporary berms or implement other measures to prevent erosion of the stored material and allow for proper stormwater flow.
    - ii. Stockpiles/activities shall be placed/conducted atop at least 24 inches of intermediate cover material and shall not impede stormwater flow, unless otherwise approved by the DOH. Temporary berms, containment measures, activity areas, and access to stockpiles/activity areas shall also be placed atop at least 24 inches of intermediate cover material, unless otherwise approved by the DOH.
    - iii. The permittee(s) shall collect pot hole samples to verify the depth of intermediate cover prior to placement of the material storage stockpiles, temporary berms, or other containment measures and prior to commencement of other activities. Documentation of depth, as well as periodic inspections, shall be provided to the DOH upon request. Periodic inspections shall be performed on a monthly basis during material storage and weekly when significant activity is ongoing.

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- iv. Material storage stockpiles shall not exceed permit grades if storage is for greater than 30 days, unless a professional engineer certifies that the proposal will not affect the integrity of the landfill. The certification shall include calculations used in the determination.
- b. The DOH shall consider the type of material, reason, and duration of the storage activity. The DOH may require additional requirements and controls. Storage of materials or other activities shall not commence without prior written approval from the DOH.

#### **Section E. Provisions Related to the Operation of the MSW Landfill**

1. The nominal operating rate of the landfill is 1,400 tons per day. The peak daily disposal rate shall not exceed 3,500 tons per day.
2. The permittee(s) shall provide adequate equipment and personnel to operate the MSW landfill facility, including provisions for back-up personnel and equipment. The following equipment and personnel requirements shall be available at the active workforce, unless otherwise approved by the DOH.
  - a. At an average operating rate of less than 1,400 tons per day of MSW, the site shall have operationally available (in working condition and with operator) a minimum of one bulldozer, one compactor, one water truck and one traffic controller. The traffic controller and bulldozer operator may be the same person if operating below 1,000 tons per day.
  - b. At an average operating rate between 1,400 and 2,500 tons per day of MSW, the site shall have operationally available a minimum of 2 bulldozers, 2 compactors, one water truck and 2 traffic controllers.
  - c. At rates of over 2,500 tons per day, the site shall have operationally available a minimum of 3 bulldozers, 2 compactors, one water truck, and 2 traffic controllers.
3. Operators shall routinely clean the tracks/wheels at the working face using shovel/dry methodology. However, if water is needed, cleaning shall be at the workforce and the amount of water used shall be limited to an amount that would otherwise be used for dust control and not cause infiltration into the waste layer.
4. The permittee(s) shall inform drivers/operators of non-household vehicles that their loads should be covered prior to entering the facility.
5. The permittee(s) shall implement the Asbestos Management and Disposal Plan, as provided in the Site Operations Manual. Compliance with the plan does not preclude

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compliance with other applicable statutes, regulations, and rules. The permittee(s) shall document the quantity, type, and location of asbestos disposed of in the MSW landfill. Disposal locations shall be recorded with GPS coordinates. The permittee(s) shall maintain records on the amount and location of asbestos disposal.

6. Loads of treated medical waste shall be placed in a trench/pit excavated within waste that was placed on the same day. Loads of treated medical waste shall be immediately covered with a minimum of two (2) feet of MSW and compacted.
7. The permittee(s) shall implement a Dead Animal and Offal Management Plan, and these permit conditions:
  - a. Loads of dead animals and offal shall only be received between the hours of 8:30 a.m. and 2:30 p.m., unless otherwise approved or restricted by the DOH.
  - b. Loads of dead animals and offal shall be placed in trench/pit areas, excavated within waste that was placed on the same day.
  - c. Loads of dead animals and offal shall be immediately covered with a minimum of two (2) feet of MSW or soil and compacted. The thickness of MSW shall be increased or additional soil shall be used, as needed to minimize odors.
  - d. Odor neutralizers and soil cover shall be used, as needed, to minimize odors.
8. The permittee(s) shall implement the Odor Control Program, as provided in the Site Operations Manual, and these permit conditions. The odor neutralization system shall be used as needed to manage odors from the site.
  - a. The acceptance of odorous loads shall be scheduled to prevent trucks containing odorous loads from waiting outside the facility, minimize the time the trucks containing odorous loads are waiting in the queue, ensure that a sufficient amount of MSW has been placed to allow creation of a trench/pit area for odorous load disposal, and ensure that sufficient loads of MSW will be placed over the odorous load prior to placement of daily cover.
  - b. Odorous loads shall only be received between 8:30 a.m. and 2:30 pm, unless otherwise approved or restricted by the DOH.
  - c. Odorous loads shall be placed in trench/pit areas, excavated within waste that was placed on the same day.
  - d. The odorous load shall be immediately covered with a minimum of two (2) feet of MSW or soil and compacted. The thickness of MSW shall be increased or additional soil shall be used, as needed to minimize the odor.
  - e. Odor neutralizers and soil cover shall be used, as needed to minimize odors.

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- f. In the event that the facility receives an odorous load outside of common odorous wastes (such as treated sewage sludge, bulk shipments of off-specification foods, food wastes, dead animals, and offal), the permittee(s) shall notify the DOH prior to acceptance of the load. If an odorous load outside of common odorous waste arrives at the scalehouse without prior notification to the permittee(s), the permittee(s) shall notify the DOH within four (4) hours of its arrival. The notification shall also include any special management and handling procedures that will be implemented.
  - g. If odor control measures are not adequate, the permittee(s) shall implement additional odor control measures and the DOH may require that additional measures be implemented.
- 9. The following controls shall apply to the operations with contaminated materials (as defined in Special Conditions, Section C, Item 5.c.viii):
  - a. The permittee(s) shall ensure that contaminated materials are removed from the truck during disposal and excess amounts of contaminated materials are not transported from the site.
  - b. The permittee(s) shall only allow the disposal of contaminated materials when the wind speed is below 30 mph at the active workface.
  - c. The permittee(s) shall implement dust control measures, such as water sprays and barriers, to adequately control dust during placement of contaminated material. The DOH may require or the permittee(s) may choose to use additional dust control measures, such as containerization of contaminated soil or dust monitoring during placement. Additional control measures and procedures for dust monitoring, if applicable, shall be specified in the Contaminated Materials Notification.
  - d. The permittee(s) shall document the special disposal procedures implemented for the contaminated material. Special disposal procedures may include isolation of the material by the use of synthetic or soil barriers or containers.
- 10. Scrap metal may be removed from the disposal waste stream and recycled.
  - a. Scrap metal removal operations shall be performed in accordance with the operations manual and Special Conditions, Section D, Item 11.
  - b. Scrap metal removal operations shall be in a designated area, located away from the active workface and shall not be accessible by household users.
  - c. The permittee(s) may use screens and magnets to remove scrap metal from the waste stream. The permittee(s) may shear scrap metal for size reduction.

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- d. Scrap metal shall be stored in containers with a capacity of no more than 40-cubic yards. A maximum of two (2) 40-cubic yard containers may be stored at the site for scrap metal storage.
11. Contaminated soil with contaminant concentrations below current DOH Environmental Action Levels (EALs) for direct exposure, commercial/industrial land use may be used as:
    - a. void space fill within MSW landfill working face; and
    - b. daily cover, provided that the daily cover shall not be exposed for more than 24 hours.
  12. Contaminated soil with contaminant concentrations greater than current DOH EALs for unrestricted land use shall not be used as intermediate or final cover.
  13. The permittee(s) shall place daily cover on the active MSW workface at the end of each workday, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.
  14. The daily cover material shall be comprised of a minimum of six inches of earthen material or an alternative daily cover, and shall leave no exposed waste. Of primary preference, earthen material shall be soil. If soil is not available, the earthen material may consist of aggregate and shall have an aggregate size less than 2.5 inches and well graded, provided that the aggregate meets the requirements of Special Conditions, Section E, Item 13. The permittee(s) shall maintain a daily log, including the date, volume, and type of material used as daily cover.
  15. The permittee(s) may submit a written proposal to request the use of an alternative daily cover (ADC), comprised of alternative materials of an alternative thickness (other than at least six inches of earthen material).
    - a. The request shall include ADC specifications, associated operational procedures, an assessment of whether the alternative material and thickness can control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment, and any other pertinent information.
    - b. The use of ADC is limited to daily cover use.
    - c. The permittee(s) shall obtain DOH approval, in writing, prior to the commencement of the demonstration project.
    - d. The use of ADC shall be evaluated in demonstration projects. The demonstration project shall be performed in 6-month increments to determine

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- whether the ADC and its thickness can control disease vectors, fires, odors, nuisance, litter and scavenging without presenting a threat to human health and the environment.
- e. The demonstration period shall include oversight by the DOH. The permittee(s) shall report the performance of the ADC at the end of the demonstration period, including an evaluation of whether the ADC is appropriate for use at the facility, and successful operational procedures.
  - f. The permittee(s) shall obtain DOH approval, in writing, prior to commencement of continued use of ADC beyond the demonstration period. The DOH may impose conditions on the use of ADC. Those conditions shall become part of this permit.
  - g. The demonstration period or the approved use of an ADC may be rescinded or cancelled by either the DOH or operator at anytime without cause.
16. The permittee(s) shall implement a Daily Cover Monitoring Verification Program as follows:
- a. The permittee(s) shall take digital photos of the active workforce at the middle and end of each weekday (Monday through Friday), from the same perspective, to document the placement and thickness of daily cover. Digital photo records shall be maintained at the facility and submitted to the DOH via email by 12:00 noon on the next business day, with cell location information. The permittee(s) and the DOH will work cooperatively to determine the best perspective for the photos.
  - b. The permittee(s) shall record the following quantitative items on a daily basis:
    - i. volume of waste disposed;
    - ii. cell geometry, and
    - iii. volume and type of daily cover used.
17. The permittee(s) shall cover all inactive MSW areas with intermediate cover. Inactive waste areas are areas that do not receive waste (MSW) within a 30-day period.
18. The permittee(s) shall cover any area receiving vehicular traffic with intermediate cover, regardless of the time period since last receiving waste.
19. Intermediate cover shall be a minimum of 12 inches of earthen material (may include six inches of soil daily cover). Particle size shall be adequate to minimize infiltration and direct stormwater to collection systems.

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20. Intermediate cover shall be inspected on a regular basis, at least once per month, and shall be addressed as issues are identified, such as repairs for erosion and cracking. The permittee(s) shall maintain a log of inspections, findings, and corrective actions, if needed. The DOH may require that intermediate slopes be vegetated or measures be taken to control dust.
21. In the event of sustained winds (over a two minute period), at or exceeding 40 mph at the active workface, the permittee(s) shall stop disposal operations and proceed with placement of daily cover. The permittee(s) shall also cease acceptance and disposal of waste in other high wind conditions, as determined by the foreman and Site Manager or Environmental Compliance Officer. The permittee(s) shall maintain a log of such events, including the date, time of shutdown, and associated wind speed.

#### **Section F. Provisions Related to the Operation of the Ash Monofill**

1. Only MSW, industrial, or commercial ash may be disposed of in the ash monofill.
  - a. Acceptance of industrial/commercial ash shall be in accordance with Special Conditions, Section C, Item 5.
  - b. The permittee(s) shall provide written notification at least twenty-four (24) hours prior to acceptance of industrial/commercial ash. The notification shall include the source of the ash, quantity of ash, physical and chemical characteristics of the ash, proposed dates of receipt, and any special handling/disposal procedures associated with the ash. If the ash is considered a Contaminated Material, the approval and acceptance shall also be in accordance with Special Conditions, Section C, Item 5.d.
2. The ash shall be the result of complete incineration.
3. The ash shall meet the liquid restriction requirements in HAR 11-58.1-15(i).
4. Any ash that is considered a hazardous waste as defined in state hazardous waste laws and regulations shall not be disposed of in the ash monofill.
5. The daily disposal rate for ash shall not exceed 400 tons per day. In the event that an additional boiler is constructed and operational at H-Power, the ash monofill disposal rate shall not exceed 600 tons per day.
6. The permittee(s) shall provide adequate equipment and personnel to operate the ash monofill, including provisions for back-up personnel and equipment. The following equipment and personnel requirements shall be met unless otherwise

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approved by the DOH. The site shall have operationally available a minimum of one bulldozer, one loader/compactor, and one water truck.

7. The active workspace for ash placement shall not exceed 75 feet by 75 feet, or other dimensions approved by the DOH.
8. The permittee(s) shall spread and compact ash within 24 hours of receipt at the facility.
9. The permittee(s) shall cover disposed ash at the end of each operating day, or at more frequent intervals if necessary, to control dust. The daily cover material shall be comprised of a minimum of six inches of earthen material, or an alternative daily cover.
  - a. The earthen material shall have an aggregate size that is sufficient to prevent the migration of ash.
  - b. Fresh MSW ash material is acceptable as alternative daily cover provided that such usage shall be limited to the active workspace where MSW ash is being placed on a daily basis, which will be covered the next day.
  - c. If alternative cover comprising of fresh ash is not covered within 24 hours, soil daily cover shall be applied.
10. The permittee(s) shall apply at least six (6) inches of soil cover over exposed ash every seven (7) days, or more frequently as required by the DOH.
11. The permittee(s) shall implement a Weekly Cover Monitoring Verification Program as follows:
  - a. The permittee(s) shall take digital photos of the active ash workspace on a weekly basis, prior to the placement of the weekly soil cover and after the weekly cover has been placed. Digital photo records shall be maintained at the facility and submitted to the DOH via email by 12:00 noon on the next business day following the day on which weekly cover was placed, with cell location information. The permittee(s) and the DOH will work cooperatively to determine the best perspective for the photos.
  - b. The permittee(s) shall record the following quantitative items on a weekly basis:
    - i. volume of waste disposed;
    - ii. cell geometry; and
    - iii. volume of soil cover used.



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12. The permittee(s) shall cover all inactive ash areas with intermediate cover. Inactive areas are areas that do not receive waste (ash) within a 30-day period.
13. The permittee(s) shall cover any area receiving vehicular traffic with intermediate cover, regardless of the time period since last receiving waste.
14. Intermediate cover shall be a minimum of 12 inches of earthen material (may include six (6) inches of soil weekly/daily cover). Contaminated soil with contaminant concentrations greater than current DOH EALs for unrestricted use shall not be used as intermediate or final cover. Particle size shall be adequate to minimize infiltration and direct stormwater to collection systems.
15. Intermediate cover shall be inspected on a regular basis, at least once per month, and shall be addressed as issues are identified, such as repairs for erosion and cracking. The permittee(s) shall maintain a log of inspections, findings, and corrective actions, if needed. The DOH may require that intermediate slopes be vegetated or measures be taken to control dust.
16. Any ash placed in the ash monofill shall not be subsequently excavated or removed from the monofill without prior notification to and approval by the DOH.
17. In the event of sustained winds (over a two minute period), at or exceeding 40 mph at the active workface, the permittee(s) shall implement additional measures to adequately control dust from exposed ash. Dust control measures may include, but are not limited to, applying water sprays and soil cover. The permittee(s) shall maintain a log of such events, including the date, dust control measures implemented, and associated wind speed.

#### **Section G. Surface Water Management**

1. The permittee(s) shall design, construct, and maintain a surface water run-on and run-off control system in accordance with HAR 11-58.1-15(g), throughout the life of the landfill and through post-closure. At a minimum, the permittee(s) shall construct and maintain the following:
  - a. A western bypass channel or offsite surface water conveyance for the upper canyon and western area flows, in accordance with construction drawings titled *Western Surface Water Drainage Project*, dated January 2010 and prepared by GEI Consultants, Inc. This conveyance shall be designed to handle 24-hour, 25-year storm flows, and will bypass the landfill and

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terminate in a stilling basin to be constructed below the existing sedimentation pond. See Special Conditions, Part II, Section B.3.

- b. An on-site surface water management system as follows:
- i. A surface water drainage system of pipe and swale conveyances running along the eastern side of the landfill designed to handle storm flows from a 24-hour, 25-year storm, in accordance with drawings, titled *Eastern Surface Water Drainage Project, 2011 Partial Final Closure*, dated October 2009 and prepared by GEI Consultants, Inc. See Special Conditions, Part II, Section B.4 for description of work.
  - ii. For the western side of the landfill, as dictated by the on-going construction of the Western Berm extension and west berm buttress, surface water drainage shall be controlled via the installation of temporary berms, swales and pipes as necessary to prevent ponding and minimize infiltration of storm water into the landfill.
  - iii. During the construction of the Western Drain and temporary stormwater drain systems, there may be periods when there will either be no means to convey stormwater around the landfill or a storm of sufficient magnitude occurs that causes stormwater to overflow the temporary diversion berm for the temporary stormwater drain into cell E6. Prior to such a rain or storm event, permittee(s) shall take action by covering pocket areas with geomembrane sheet, and setting up pumps or other methods as necessary to control and direct surface water runoff in order to prevent or minimize infiltration of surface water into the landfill cells and erosion of landfill cover.
  - iv. Prior to start of construction of Cell E6, in preparation for the need to implement storm water containment actions as discussed in paragraph iii above, the permittee(s) shall determine the quantity of geomembrane sheet needed, size and quantity of pumps, and other materials and equipment that are deemed necessary, and to stage these materials and equipment for immediate use when needed.
  - v. These precautionary actions are specified in Waste Management of Hawaii, Inc., letter dated December 14, 2009. The permittee(s) shall notify the DOH verbally and by email within 24 hours of any stormwater containment action as discussed in paragraph iii above.
  - vi. The permittee(s) shall submit construction drawings for the Phase II of the Eastern Surface Water drainage system to the DOH at least 60 days prior to scheduled start of construction.
  - vii. Both of these drainage systems will flow into the existing sedimentation pond.

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- c. During construction of surface water systems, the permittee(s) shall ensure that existing storm water collection and conveyance are sufficient to manage 24-hour, 25-year storm events.
2. Stormwater that comes in contact with solid waste shall be managed and disposed of as leachate.
3. The conditions of this permit do not preclude compliance with any other applicable federal, state, or local requirements including water quality and surface water discharge regulations.
4. The landfill Surface Water Management Plan shall be updated annually and filed with the DOH by September 1 of each year. It shall contain the following information:
  - a. Report of an annual inspection of surface water management features and facilities, together with a description of required maintenance and changes, which shall be completed by September 1 of each year;
  - b. Updated drawings showing current topography of the landfill, surface water drainage paths and conveyances, and drainage system modifications planned for the next year in response to waste filling;
  - c. All areas with intermediate cover shall be graded to direct stormwater away from the workface and towards the stormwater collection system;
  - d. Engineering calculations documenting the capability of the surface water management system to comply with the run-on and run-off requirements listed under Special Conditions, Section G, Item 1. Top deck areas shall have minimum slopes of 2% to 5% to promote drainage. Side-slopes shall not exceed 3 horizontal to 1 vertical to limit erosion. Siltation control fences or equivalent shall be used to maintain silt on-site;
  - e. Any updates to the September 2006 Storm Water Pollution Control Plan or October 2007 Spill Prevention, Control, and Countermeasures (SPCC) Plan prepared pursuant to federal requirements under the Clean Water Act.

**Section H. Perimeter Gas Management**

1. The permittee(s) shall implement the Perimeter Gas Monitoring Plan dated November 2009, and approved subsequent submissions. The program shall also be conducted in accordance with HAR 11-58.1-15(d) and these permit conditions:
  - a. The well shall not be vented prior to measuring the gas concentration.

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- b. The permittee(s) shall install additional permanent gas monitoring probes within six (6) months of MSW placement in cell(s) adjacent to planned probe locations and provide documentation of installation within sixty (60) days of completion. Documentation shall include, but is not limited to, geologic logs of each probe location, surveyed locations and elevations of probes, and as-built drawings of each monitoring probe.
2. The permittee(s) shall monitor the concentration of gases, including oxygen, methane, carbon dioxide, and hydrogen. The permittee(s) shall monitor the concentration of gases in facility structures, including temporary structures, and at the property boundary on a quarterly basis, or other frequency as approved by the DOH. If an exceedence is identified, the permittee(s) may conduct a verification monitoring event, provided that the verification monitoring is conducted within one (1) hour of the initially detected exceedence. If exceedences or other anomalous condition is identified, the DOH may increase the frequency of monitoring events.
  - a. The concentration of methane gas shall not exceed 25% of the lower explosive limit (LEL) for methane in facility structures.
  - b. The concentration of methane gas shall not exceed the LEL for methane at the facility property boundary.
  - c. The concentration of hydrogen gas shall not exceed 25% of the LEL for hydrogen in facility structures.
  - d. The concentration of hydrogen gas shall not exceed the LEL for hydrogen at the facility property boundary.
3. The permittee(s) shall inspect and maintain the gas monitoring probes. In the event that a probe is unusable, the permittee(s) shall repair the probe or install a new probe prior to the next monitoring event.
  - a. If the probe is repaired, submit documentation to the DOH indicating the reason for repair, type of repairs completed, and evaluations performed to ensure the probe is acceptable for use.
  - b. If the probe is replaced:
    - i. The permittee(s) shall update the Perimeter Gas Monitoring Plan to show the new probe location and identification number within thirty (30) days. The update shall also document the reason for replacing the probe.
    - ii. The permittee(s) shall submit an installation report for the new probe within thirty (30) days of completion. The installation report shall include the information specified in Special Conditions, Section H, Item 2.

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- iii. The permittee(s) shall abandon the unusable probe, and submit associated documentation.
4. The permittee(s) shall ensure that the field meters are factory calibrated in accordance with manufacturer's specifications. The permittee(s) shall also field calibrate the meters prior to each monitoring event. The permittee(s) shall conduct monitoring events only with equipment that has been properly calibrated and maintained.
5. The permittee(s) shall submit a report with results within 45 days of each monitoring event. The results shall include the date and time, gas concentrations by volume, barometric pressure, site conditions, name of personnel conducting the monitoring, description of equipment and calibration results, description of monitoring procedure, and identification of any procedures or observations outside of normal conditions.
6. If verification monitoring performed within one (1) hour of the initial exceedence shows concentrations below the limits in Special Conditions, Section H, Item 2, the permittee(s) shall place results in the operating record and send written notification of the exceedence and verification monitoring results to the DOH within seven (7) days.
7. If combustible gas concentrations exceed the limits in Special Conditions, Section H, Item 2, and verification monitoring is not performed within one (1) hour of the initial exceedence or verification monitoring confirms the initial exceedence, the permittee(s) shall perform the following.
  - a. Immediately take all necessary steps to ensure protection of human health,
  - b. Immediately notify the DOH of the exceedence,
  - c. Within three (3) days of detection, place in the operating record and submit to the DOH, the type of gas, gas levels detected and a description of the steps taken to protect human health,
  - d. Within sixty (60) days of detection, prepare and implement a remediation plan for the combustible gas releases, place a copy of the plan in the operating record, provide a copy of the plan to the DOH, and notify the DOH that the plan has been implemented.
  - e. Within thirty (30) days after the remediation plan has been completed, submit a report to the DOH documenting the actions taken, additional monitoring results, and plans to prevent future recurrences.
  - f. The DOH may modify the reporting and implementation schedule, as necessary to protect human health and the environment.

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## Section I. Leachate Management/Groundwater and Leachate Monitoring

### Leachate Management

1. The permittee(s) shall implement the Leachate Management Plan as provided in the Site Operations Manual dated December 2009 and approved subsequent submissions. The permittee(s) shall provide an updated Leachate Management Plan within sixty (60) days of completed construction of additional sumps. The updated plan shall specify compliance levels associated with each new sump and reference as-built drawings and surveyed elevations.
2. The permittee(s) shall manage any storm water that comes in contact with solid waste as leachate.
3. The permittee(s) shall manage leachate to prevent any entry into the stormwater collection system and any contact with the public.
4. The permittee(s) shall maintain an elevation control point at the top of casing or other monument in the immediate vicinity of the sump, for the measurement of leachate in each sump. The elevation control point shall be surveyed on an annual basis and clearly marked. The permittee(s) shall also maintain a monument, showing benchmark elevation, located in a position off the landfill.
5. The permittee(s) shall remove leachate from the landfill via each of the leachate sumps, in a manner that maintains a maximum depth of 30 centimeters (12 inches) of leachate above any part of the liner in the cell, outside the sump area. The leachate sump compliance depths are as follows:
  - a. Ash Sump: 88.1 feet above msl, per Leachate Management Plan, dated December 2009.
  - b. E1 Sump: 227.1 feet above msl (sump base at 223.1 ft above msl and sump depth is 3 feet), per Leachate Management Plan, dated December 2009.
  - c. 4B Sump: 124.9 feet above msl (sump base at 120.9 feet msl and sump depth estimated at 3 feet), per Topographic Survey Map, Ash Cell 4 and MSW 4B, prepared by Park Engineering, dated May 19, 2006, which is referenced on Sump 4B Riser Replacement drawing by Sanborn, Head & Associates revision dated July 26, 2007.
  - d. E6 Sump: 388 feet above msl, with sump depth of approximately 3 feet, per Sheet 8 of the *Construction Drawings Cells E5 through E8*

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dated February 10, 2010 and prepared by Geosyntec Consultants, Inc. The compliance elevation may be modified based on as-built drawings of the sump, and as accepted by the DOH.

- e. E8 Sump: 427 feet above msl, with sump depth of approximately 3 feet, per Sheet 22 of the *Construction Drawings Cells E5 through E8* dated February 10, 2010 and prepared by Geosyntec Consultants, Inc. The compliance elevation may be modified based on as-built drawings of the sump and as accepted by the DOH.

6. The permittee(s) shall maintain usable access to all groundwater monitoring wells and leachate manholes/sumps shown in the Groundwater and Leachate Monitoring Plan dated November 2009, and approved subsequent submissions.
7. The permittee(s) shall maintain the integrity of the monitoring wells and sumps, and protect them from damage, destruction, or vandalism. If repairs or replacement is necessary to ensure proper management and monitoring, then the permittee(s) shall design and construct the necessary repairs and/or replacements.
  - a. Should any of these wells/manholes become damaged, destroyed, or vandalized, the permittee(s) shall notify the DOH immediately. The notification shall include pertinent information as to the cause of the destruction, description of measures to replace and/or repairs of the monitoring station/manhole, and actions taken to prevent the recurrence of such problems in the future.
  - b. If a new well/manhole will be constructed or repaired, submit a construction plan to the DOH prior to commencement of construction. At a minimum, the plan shall include the proposed well location, rationale for the location, well design, and installation procedures. The permittee(s) shall implement the repair/construction upon DOH approval.
  - c. A Well/Sump Completion Report shall be sent to the DOH within thirty (30) days of any new groundwater well/leachate sump construction. At a minimum, the report shall include geologic logs, surveyed location and elevation of the well, and as-built drawings.
8. Leachate Storage, Transport, and Removal
  - a. The permittee(s) shall use an automated pumping system to pump leachate to on-site storage tank(s) to comply with the leachate sump compliance depths in Special Conditions, Section I, Item 5. The automated systems shall

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include an alarm system to alert the permittee(s) to anomalous conditions in the pump or piping system.

- b. The permittee(s) shall transport leachate from the storage tank(s) to an authorized wastewater treatment and disposal facility, or as approved by the DOH, as frequently as needed to comply with leachate sump compliance depth requirements in Special Conditions, Section I, Item 5.
- c. The storage tanks and connector piping shall be situated within the limits of the landfill in areas with a Subtitle D liner system constructed in accordance with HAR 11-58.1, or within secondary containment.
- d. The permittee(s) shall maintain the storage tanks and connector piping between the sumps and storage tanks at all times.
- e. If the pump system or any portion of the leachate collection and removal system is inoperable, the permittee(s) shall take immediate steps to rectify the problem and implement contingency measures to comply with remaining conditions of this permit.
- f. The permittee(s) shall inspect the condition and integrity of the tanks and connector piping at least once every six (6) months. The permittee(s) shall document the results of the inspections and implement corrective actions to address any findings, including but not limited to rusting, that may compromise the integrity of the system and result in a release.
- g. The permittee(s) shall contract with one or more qualified and properly licensed third-party contractors to remove and transport leachate from the temporary storage tanks, to supplement any leachate transport capability of the permittee(s). The permittee(s) shall maintain a current copy of all leachate pumping agreements with third-party contractors, and shall maintain the contracts in full force at all times. The permittee(s) shall provide this information to the DOH upon request.
- h. The permittee(s) shall empty the E-1 berm drain and ash berm drain at a frequency such that there is no significant accumulation of liquid/leachate in each line. The permittee(s) shall empty the drains on a monthly basis and more frequently during rainfall events, or as otherwise approved by the DOH.

**9. Leachate Monitoring and Recordkeeping**

- a. The permittee(s) shall use automated monitoring and recordkeeping systems to monitor leachate levels in all sumps and storage tanks. The automated systems shall include an alarm system to alert the permittee(s) to anomalous conditions in the sumps or storage tanks.
- b. The permittee(s) shall maintain a log of the status of the leachate collection systems, at least three times per week. The log shall include the date, level



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- of leachate in each sump, volume of leachate in each tank, and associated pump rates.
- c. The permittee(s) shall take manual measurements of leachate levels in the ash sump and 4B sump at least once per month. The permittee(s) shall take manual measurements of leachate levels in the E1 sump on an annual basis. The permittee(s) shall take manual measurements of leachate levels in the E6 and E8 sumps on a monthly basis, for the first six months of operation. After the first six (6), the permittee(s) shall take manual measurements of leachate levels in the E6 and E8 sumps on an annual basis. If manual measurements are inconsistent with automated readings or other problems are identified with the system, the DOH may increase the frequency of manual measurements.
  - d. In the event that any portion of the automated monitoring or recordkeeping systems is under repair, maintenance, or inoperable, the permittee(s) shall take manual measurements at least every other day, or daily if needed, to monitor the leachate levels in the associated sumps. Within seven (7) days of triggering the requirement for manual measurements, the permittee(s) shall submit written notification to the DOH describing the situation, corrective actions, and schedule. The DOH may increase the frequency of manual measurements. After the repair/maintenance is completed, the permittee(s) shall continue daily measurements for a minimum of three (3) days, and weekly for three (3) weeks to verify that all automated readings are consistent with manual measurements. The permittee(s) shall submit written notification, including documentation, of the three (3)-week verification test, prior to reducing the frequency of manual measurements.
  - e. The permittee(s) shall maintain the following documentation for management of leachate from the E-1 berm drain line and ash berm drain line:
    - i. date of leachate removal;
    - ii. quantity of leachate removed; and
    - iv. disposal method.

#### Groundwater and Leachate Monitoring

- 10. Groundwater and leachate monitoring shall be conducted in accordance with HAR 11-58.1-16, the State of Hawaii Landfill Groundwater Monitoring Guidance Document Version 1.8 dated September 2002, and the conditions of this permit.
- 11. The permittee(s) shall implement the Groundwater and Leachate Monitoring Plan dated October 2009, approved subsequent submissions, and applicable conditions of this permit. The permittee(s) shall submit a revised Groundwater and Leachate

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Monitoring Plan to address the two (2) new sumps in Cells E6 and E8 of the expansion area.

- a. The revised Plan shall be submitted within sixty (60) days of permit issuance.
  - b. New groundwater monitoring wells shall be installed within one hundred eighty (180) days of plan approval.
12. All sample collection, handling, management, and analysis shall be conducted in accordance with EPA SW-846, *Test Methods for Evaluating Solid Waste*.
  13. Each sample shall be properly collected, identified, contained, and preserved. The name and signature of the person who collected the sample shall be included in the records. A chain of custody shall be maintained from the time of sample collection through the final analysis and disposition.
  14. Sample analysis shall be conducted by an independent third party with appropriate credentials and performed at the expense of the permittee(s).
  15. Groundwater samples shall be collected and analyzed on a quarterly basis, or as required or otherwise approved by the DOH.
    - a. Groundwater samples shall be analyzed for constituents listed in 40 CFR 258, Appendix I, major cations and anions (Mg, Na, Ca, K, Cl, CO<sub>3</sub>, SO<sub>4</sub>, HCO<sub>3</sub>), major leachate indicators (TDS, TOC, total alkalinity, nitrogen-ammonia, Cl, and Fe), COD, nitrate-N, bromide, and field measurements (electrical conductance, pH, temperature, turbidity, and groundwater surface elevation), or as required or otherwise approved by the DOH.
    - b. Groundwater samples from newly installed wells shall also be analyzed for the following constituents in its first quarterly monitoring event: constituents listed in 40 CFR 258, Appendix II, major cations and anions (Mg, Na, Ca, K, Cl, CO<sub>3</sub>, SO<sub>4</sub>, HCO<sub>3</sub>), major leachate indicators (TDS, TOC, total alkalinity, nitrogen-ammonia, Cl, Fe), COD, nitrate-N, bromide, and field measurements (electrical conductance, pH, temperature, turbidity, and groundwater surface elevation), or as required or otherwise approved by the DOH.
  16. Leachate samples shall be collected and analyzed on a quarterly basis, or as required by the DOH. Leachate samples shall be analyzed for constituents listed in 40 CFR 258, Appendix II, major cations and anions (Mg, Na, Ca, K, Cl, CO<sub>3</sub>, SO<sub>4</sub>, HCO<sub>3</sub>), major leachate indicators (TDS, TOC, total alkalinity, nitrogen-ammonia, Cl, Fe), COD, nitrate-N, bromide, and field measurements (electrical conductance, pH, temperature, and turbidity), or as required or otherwise approved by the DOH.

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- a. Following a minimum of two (2) years of consecutive quarterly intrawell groundwater monitoring, the permittee(s) may petition the DOH for a reduction in testing to semiannual monitoring.
- b. Following a minimum of one (1) year of consecutive quarterly leachate monitoring, the permittee(s) may petition the DOH for a reduction in testing to annual monitoring.
- c. The permittee(s) shall submit the request in writing. The permittee(s) must receive written approval from the DOH prior to implementation of any change in sampling frequency. If other information indicates that more frequent monitoring is justified, the DOH may reinstate the original testing and frequency requirements.

**18. The permittee(s) shall prepare and submit a Groundwater/Leachate Monitoring Report within ninety (90) days of sampling, or other applicable reporting period. At a minimum, the monitoring reports shall include:**

- a. Identification of wells/manholes sampled during the event;
- b. Sample collection dates and methodology;
- c. Identification of third party entity that performed the sample analysis;
- d. Field measurements and analytical data, including copies of laboratory reports;
- e. Statistical evaluation of all analytical data (except field measurements);
- f. Identification of any deviations from the plan, reason for the deviation, and affect on the sampling results; and
- g. Statement of whether any detections of VOCs or statistically significant increases were identified.

**19. In the event of a detection of VOCs above the practical quantitation limit or a statistically significant exceedence, the permittee(s) shall comply with the requirements of HAR 11-58.1-16 and the Landfill Groundwater Monitoring Guidance document.****Section J. Closure and Post-Closure Requirements**

1. The permittee shall submit an updated Closure Plan within ninety (90) days of receipt of this permit. The updated Closure/Post-Closure Plan shall reflect the

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permitted landfill expansion, including MSW Cells E5-E7, ash cell E8, additional cell E9, and associated leachate collection sumps. The Plan shall also:

- a. Identify landfill units slated for closure as referenced in Special Conditions, Section J, Items 3, cells that have already reached final grades, and cells where waste will no longer be disposed of;
  - b. Include sequencing of landfill closure.
  - c. Provide a schedule for submission of construction plans and specifications, as required by Special Conditions, Section J, Item 4.
2. The permittee(s) shall perform closure and post-closure activities in accordance with the Closure and Postclosure Care Plan, prepared by GeoSyntec Consultants, Inc., as revised February 2009, approved subsequent documents, HAR 11-58.1-17, and these permit conditions. Should there be discrepancies between these documents, the HAR and these permit conditions take precedence.
  3. The permittee(s) shall begin closure activities of the ash monofill cells 1 through 8 within thirty (30) days after the date on which the ash monofill received the known final receipt of waste (reaches permitted grades), or December 31, 2012, whichever comes first. The DOH may consider an extension provided adequate demonstration is provided to show that the unit has additional permitted capacity and that the permittee(s) has taken and will continue to take all steps necessary to prevent threats to prevent human health and the environment from the unclosed ash monofill cells 1 through 8.
  4. The permittee(s) shall submit closure construction plans and specifications at least six months prior to scheduled construction, including a proposed construction schedule. The construction plans and specifications shall be prepared and certified by a professional engineer, with at least five (5) years experience in designing landfills, and registered in the State of Hawaii.
  5. The permittee(s) shall provide written notice of intent to close each landfill unit at least ninety (90) days prior to initiating closure activities. The notice of intent shall include a schedule and shall also be placed in the operating record.
  6. The permittee(s) shall begin closure activities of each MSW landfill unit or ash monofill unit after receiving DOH approval on the closure construction plans and specifications and:
    - a. within thirty days after the date on which the unit receives the known final receipt of wastes; or

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- b. within one year after the most recent receipt of wastes, if remaining capacity exists, and there is reasonable likelihood that the landfill unit or ash monofill unit will receive additional wastes; except, as provided in Special Conditions, Section J, Item 3.
7. Soil with contaminant concentrations above DOH EALs for unrestricted use shall not be used in the final cover system.
8. The permittee(s) shall complete closure activities of each unit within one hundred eighty (180) days following the beginning of closure in Special Conditions, Section J, Item 5 or 6. The permittee(s) shall retain a professional engineer registered in the state of Hawaii for the supervision of the closure construction quality assurance requirements, and upon the completion, the engineer shall submit a summary report to the DOH as to the complete conformity to the plans and specifications as approved. The summary report shall be submitted within sixty (60) days after closure activities are completed. The summary report shall include a certification that the permeability of the final cover system shall be less than or equal to the permeability of each type of bottom liner system present at the facility. The summary report shall also include a description of closure activities, as-built drawings, surveys of the final cover system, a documented control program of the final cover system construction, quality assurance/quality control testing procedures, laboratory analyses, and engineer's certification of construction.
9. At a minimum, the Closure and Post-Closure Plan and the Financial Assurance report shall be revised every five (5) years, or whenever facility plans are updated or changed. This is notwithstanding the requirement to make adjustments for inflation on an annual basis.
10. Within ninety (90) days of completion of closure construction, the permittee(s) shall submit a copy of the notation on the deed to the landfill property in accordance with HAR 11-58.1-17.
11. The permittee(s) shall inspect and maintain the final cover system, including portions of the final cover system in the case of a phased closure, and other environmental controls associated with the facility on a quarterly basis, or more frequently if required by the DOH. If post closure plans are inadequate to maintain the integrity of the final cover system and associated environmental controls, additional measures may be required. The DOH may periodically require revisions to the plan.
  - a. The inspections of the final cover system shall include, but are not limited to:
    - an assessment of security control; erosion and erosion damage; cap

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- deformation resulting from settlement, subsidence, or deformation; and runoff control structures.
- b. The inspections of other environmental controls shall include, but are not limited to, an assessment of the surface water management system, perimeter gas monitoring system, leachate collection and control system, and presence of odors, vectors, and litter.
  - c. The permittee(s) shall document findings and implement corrective actions or other procedures, as necessary to maintain the integrity and functionality of the final cover system and environmental controls. The permittee(s) shall submit written notification of any areas requiring attention and any associated corrective actions or procedures performed, within thirty (30) days of the quarterly inspection.
12. The permittee(s) shall operate the surface water management system, perimeter gas monitoring system, leachate collection and control system, and groundwater/leachate monitoring programs in accordance with this permit. The DOH may periodically require revisions to the plans.
13. During closure and post-closure periods, the permittee(s) shall continue to assess the landfill after emergency events such as earthquakes and fires, in accordance with Special Conditions, Section A, Item 13.
14. If portions of the landfill are closed while the remainder of the facility is still operating, the permittee(s) shall continue operating and monitoring the closed sections in accordance with this permit. If the entire facility is no longer accepting waste, the permittee(s) shall continue operating and monitoring the closed sections in accordance with this permit.

#### **Section K. Recordkeeping and Reporting Requirements**

1. The permittee(s) shall maintain records in accordance with HAR 11-58.1-15(j), Standard Conditions, Item 11, and the conditions of this permit. Records shall include the following list and any other recordkeeping requirements set forth in this permit:
- a. Financial assurance requirements (Special Conditions, Section A, Item 12)
  - b. Select waste screening (Special Conditions, Section B, Item 2.h.iii)
  - c. Site-specific Interface Friction Tests (Special Conditions, Section B, Item 7)
  - d. Load Check Data Sheets (Special Conditions, Section C, Item 2)
  - e. Training records (Special Conditions, Section A, Item 11; Section C, Item 2; and Section D, Item 5)
  - f. Daily log of unacceptable waste (Special Conditions, Section C, Item 3)

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- g. Special Waste Acceptance Program (Special Conditions, Section C, Item 5)
  - h. User population (Special Conditions, Section D, Item 2)
  - i. Climatic information (Special Conditions, Section D, Item 4)
  - j. Litter control (Special Conditions, Section D, Item 9)
  - k. Temporary storage/other activities (Special Conditions, Section D, Items 10 and 11)
  - l. Asbestos disposal locations (Special Conditions, Section E, Item 5)
  - m. Special disposal procedures for contaminated material (Special Conditions, Section E, Item 9.d)
  - n. Daily cover log (Special Conditions, Section E, Item 14)
  - o. Daily/weekly cover monitoring verification program (Special Conditions, Section E, Item 16 and Section F, Item 11)
  - p. Monthly monitoring of intermediate cover (Special Conditions, Section E, Item 20 and Section F, Item 15)
  - q. Ceasing operations due to wind (Special Conditions, Section E, Item 21)
  - r. Dust control measures at ash monofill due to wind (Special Conditions, Section F, Item 17)
  - s. Inspection of tanks and connector piping for leachate and leachate pumping agreements (Special Conditions, Section I, Item 8)
  - t. Leachate collection system logs (automatic and manual) (Special Conditions, Section I, Item 9)
  - u. Revisions to Closure and Post-Closure Plan and Financial Assurance Report (Special Conditions, Section J, Item 9)
  - v. Inspections of final cover system (Special Conditions, Section J, Item 11)
2. The permittee(s) shall comply with the reporting requirements of Standard Condition No. 11, the following list, and any other reporting requirements set forth in this permit:
- a. Operations outside normal operating hours (Special Conditions, Section A, Item 6)
  - b. Personnel updates (Special Conditions, Section A, Item 10)
  - c. Financial assurance requirements (Special Conditions, Section A, Item 12)
  - d. Incident reporting, including suspected subsurface fires (Special Conditions, Section A, Item 13)
  - e. Evaluation of landfill integrity after emergency events (Special Conditions, Section A, Items 13.c and 13.d)
  - f. Annual updates to Alternate Waste Disposal Option (Special Conditions, Section A, Item 14)
  - g. Select waste screening (Special Conditions, Section B, Item 2.h.iii)
  - h. 4B Leachate Sump Discharge Riser extension (Special Conditions, Section B, Item 5.b)

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- i. Liner installation notification (Special Conditions, Section B, Item 8)
  - j. Identification of hazardous or PCB waste (Special Conditions, Section C, Item 3.d)
  - k. Radioactive waste detection (Special Conditions, Section C, Item 4)
  - l. Contaminated materials acceptance (Special Conditions, Section C, Item 5.d)
  - m. Changes to user population (Special Conditions, Section D, Item 2)
  - n. Acceptance of odorous loads (Special Conditions, Section E, Item 8.f)
  - o. Daily/weekly cover monitoring verification program (Special Conditions, Section E, Item 16 and Section F, Item 11)
  - p. Acceptance of industrial/commercial ash at the ash monofill (Special Conditions, Section F, Item 1)
  - q. Implement precautionary storm water containment actions (Special Conditions, Item 1.b.v)
  - r. Gas monitoring probe repair (Special Conditions, Section H, Item 3)
  - s. Explosive gas exceedences (Special Conditions, Section H, Items 6 and 7)
  - t. Monitoring well/manhole repair (Special Conditions, Section I, Item 7)
  - u. Manual leachate monitoring (Special Conditions, Section I, Item 9)
  - v. Notification of intent to close landfill units (Special Conditions, Section J, Item 5)
  - w. Final cover system areas requiring attention (Special Conditions, Section J, Item 11)
3. The permittee(s) shall submit the following documents, and any other document requirements specified in this permit, in hardcopy and electronic format:
- a. Monitoring system program for earthquakes (Special Conditions, Section A, Item 13.d.ii)
  - b. Construction drawings to modify operations layer design for E8 (Special Conditions, Section B, Item 2.i)
  - c. Eastern Drainage System, Phase II construction drawings (Special Conditions, Section B, Item 4.c)
  - d. 4-B cell sump leachate riser installation report (Special Conditions, Section B, Item 5.b)
  - e. Construction Quality Assurance report (Special Conditions, Section B, Item 10)
  - f. Western Berm Completion reports (Special Conditions, Section B, Item 15)
  - g. West Berm and filling cells E7 and E8 (Special Conditions, Section B, Item 16.c)
  - h. Seismic monitoring construction drawings for cells E5 through E9 and Western Drainage System (Special Conditions, Section B, Item 17)
  - i. Vector-specific control/prevention plan (Special Conditions, Section D, Item 8)
  - j. Surface water management plan (Special Conditions, Section G, Item 4)



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- k. Phase II construction drawings for Eastern Drain Water System (Special Conditions, Section G, Item 1.b.vi)
  - l. Gas monitoring probe installation report (Special Conditions, Section H, Item 1)
  - m. Gas monitoring probe construction/repair (Special Conditions, Section H, Item 3)
  - n. Explosive gas monitoring reports (Special Conditions, Section H, Item 5)
  - o. Explosive gas exceedence plans/reports (Special Conditions, Section H, Item 7)
  - p. Updated Leachate Management Plan (Special Conditions, Section I, Item 1)
  - q. Monitoring well/sump construction and repair (Special Conditions, Section I, Item 7)
  - r. Revised Groundwater/Leachate Monitoring Plan (Special Conditions, Section I, Item 11)
  - s. Groundwater/Leachate Monitoring Report (Special Conditions, Section I, Item 18)
  - t. Updated Closure/Post-Closure Care Plan (Special Conditions, Section J, Item 1)
  - u. Closure plans and specifications (Special Conditions, Section J, Item 4)
  - v. Summary report of closure construction (Special Conditions, Section J, Item 8)
  - w. Copy of notation to deed following closure (Special Conditions, Section J, Item 10)
4. The permittee(s) shall submit an Annual Operating Report (AOR), for the reporting period July 1 to June 30. The AOR shall be submitted by July 31 of each year to:

Solid and Hazardous Waste Branch  
Environmental Management Division  
Hawaii Department of Health  
P.O. Box 3378  
Honolulu, Hawaii 96801-3378

5. The Annual Operating Report shall be submitted in hardcopy and electronic format, and shall include the following information:
- a. Types of solid waste received (MSW, ash, greenwaste, industrial/commercial, tires, wood, metals, asbestos, and other special wastes).
  - b. Quantities of solid wastes received by type with totals using an appropriate unit of measure.

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- c. Quantities of leachate (gallons) generated and how it was handled or disposed. Water balance estimates of leachate generation by the use of the most recent EPA HELP model using climatic information collected in accordance with Special Conditions, Section D, Item 4.
- d. Using site-specific data, provide results of the HELP model and demonstrate the validity of the alternative liner design with respect to point of compliance requirements. This validation shall be included in the first AOR submitted after receipt of this permit, unless meteorological conditions require further evaluation.
- e. Quantities of filled airspace for the present year, past filled airspace and remaining airspace in both cubic yards and years shall be provided. The information shall be provided in both numerical and graphical presentations.
- f. On or before July 31 of each year, the permittee(s) shall submit an annual topographic survey of the site as prepared by a land surveyor registered in the state of Hawaii, aerial surveys, or an approved alternate method. The survey shall compare topographic elevations to final grades as approved in this permit. The permittee(s) shall also submit annual surveys of leachate sumps, as required by Special Conditions, Section I, Item 4.
- g. A Sequencing Plan, including a drawing, identifying the cell areas to be filled in the coming year including identification of the wet weather areas. The cell areas and wet weather area capacity shall be provided using an appropriate unit of measure.
- h. Final fill areas, intermediate fill areas, and future unused fill areas shall be identified for the projected year.
- i. Daily (MSW) and weekly (ash) cell construction plan, including cell geometry, estimated daily/weekly cover volumes, and soil:waste ratios.
- j. A soil-balance report of the past year and coming projected year reported separately. The soil daily cover and intermediate cover including erosion replacement soil also shall be reported separately. The source and type of soil shall be recorded separately for daily cover and intermediate cover. The soil-balance report for the past year shall be based on records of actual use in a daily, weekly and monthly basis. Any exceedence of permit grades or incomplete/non-application of daily cover shall be identified. Current soil use records shall be maintained at the facility for review.

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- k. Date of final receipt of waste at each cell in the landfill. A schedule and description of anticipated closure and post-closure activities to be performed within the next five years.
- l. A summary of closure and post-closure activities performed during the reporting period.
- m. A copy of the detailed written estimates and documentation of financial assurance.
- n. Alternate Waste Disposal Plan updates (See Special Conditions, Section A, Item 14).

**Special Conditions II, Materials Drop-Off Facility**

- 1. The Materials Drop-Off Facility (MDOF) may only accept, temporary store, and transport household waste as defined in HAR §11-58.1-03 and identified under Special Conditions II, Items 4, 5, and 10. No processing of materials shall be performed the MDOF. The operations of the facility shall be in accordance with the *Materials Drop-Off Facility Operations Plan, Waimanalo Gulch Sanitary Landfill* dated April 2009 and received May 1, 2009 and approved subsequent submissions, unless otherwise specified in these permit conditions.
- 2. The facility shall comply with the Waste Acceptance/Hazardous Waste Exclusion Plan, dated April 2009, approved subsequent submissions, and the following conditions.
  - a. No industrial waste and commercial construction & demolition waste shall be accepted at the MDOF.
  - b. No regulated hazardous waste as defined in 40 CFR Part 261 or HAR Chapter 11-261, whichever is more stringent, shall be accepted at the MDOF. No lead acid batteries shall be accepted at the MDOF.
  - c. No polychlorinated biphenyls (PCB) waste as defined in 40 CFR Part 761 shall be accepted at the MDOF.
  - d. No waste vehicles shall be accepted at the MDOF.
- 3. The permittee shall implement a screening program at the entrance to ensure that only acceptable solid wastes from household generators enter the MDOF. No commercial loads shall be accepted at the MDOF. Incoming loads shall pass through the scalehouse and the scalehouse attendant shall ensure that commercial loads are

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**OWNER:**  
City and County of Honolulu  
**OPERATOR:**  
Waste Management of Hawaii  
92-460 Farrington Highway  
Kapolei, Hawaii 96707

**PERMIT NUMBER:** LF-0182-09  
**DATE OF MODIFICATION:** June 4, 2010  
**EXPIRATION DATE:** June 3, 2015  
**COUNTY:** Honolulu  
**LATITUDE/LONGITUDE:** 21°4"N/158°7'35"W  
**PROJECT:** Waimanalo Gulch Sanitary Landfill  
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not transported to the MDOF. If the MDOF inadvertently accepts unacceptable wastes, the permittee shall properly manage and dispose of the unacceptable wastes, in accordance with applicable federal, state, and local laws and regulations prior to causing a nuisance, health or environmental threat.

4. The permittee(s) may accept the following waste materials for recycling: green waste, fiber materials (including, but not limited to, cardboard, newspaper, and mixed paper), plastic containers (#1 and #2), glass, and scrap ferrous and non-ferrous metal (scrap metal does not include electronic waste), unless otherwise specified under Special Conditions II, Item 5. The accepted materials listed in this condition shall be free of fluids and/or contaminants that may cause harm to human health or the environment (i.e., paints, oils, solvents, propane etc.). Lead glass such as lead crystals shall not be accepted.
5. The permittee(s) may accept the following special wastes for recycling: used oil, scrap tires, white goods, and propane tanks from residential sources.
  - a. Used motor oil collection, storage, transport, and recordkeeping should be managed in accordance with HAR §11-279, *Standards For The Management Of Used Oil*.
  - b. The permittee(s) shall comply with the tire disposal requirements specified under HRS 342 I for *Used Motor Vehicle Tire Recovery*. Tire storage must be free of all contaminants such as oil, grease, gasoline, diesel, etc. that could create fire hazards. Tires must be stored so that they minimize the accumulation of water and creation of a vector problem. Tires shall only be transported to a DOH-permitted recycling or tire processing facility, or out-of-state recycling facility.
  - c. White goods that enter the MDOF shall be unloaded properly, stored in an upright position at the designated area and transported to a permitted facility for refrigerant removal and processing. Refrigerant containing items shall not be pushed into a scrap metal roll-off container. Measures shall be taken to prevent the release of CFC's from refrigerant containing items into the atmosphere during storage and transport. Federal regulations prohibit venting of CFCs into the atmosphere.
  - d. Propane tanks that enter the MDOF shall be unloaded properly, stored in an upright position at the designated area and transported to a permitted facility for processing. Measures shall be taken to prevent the release of propane into the atmosphere during storage and transport.
6. Household waste from incoming vehicles shall be unloaded directly into the designated containers and storage areas. Roll-off containers shall be switched with

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empty ones when they are filled and transported to permitted recycling or disposal facilities.

7. The permittee(s) shall store all waste accepted at the MDOF in a safe and orderly manner. Wastes shall be stored in the designated recycling drop off area indicated in the MDOF layout figure submitted May 1, 2009. The recycling drop-off area shall be located atop a concrete pad and under a roof. Recyclable wastes shall be transported to DOH-permitted recycling facilities allowed and willing to accept such wastes, prior to creating a nuisance, health, safety, or environmental hazard.
8. The permittee(s) may accept additional types of recycling materials provided that an updated site plan and operation plan addressing nuisance controls, storage method and location, site holding capacity, and removal frequency, is submitted and approved by the DOH prior to accepting recyclables. Upon approval of the updated site plan and operation plan, the updated plan shall become part of this permit.
9. The maximum storage capacity and timeframe for collected recyclables is as follows. The permittee(s) shall remove waste prior to the reaching the maximum storage capacity or within ninety (90) days, whichever comes first. Collected recyclables shall not be intermingled and shall each be stored separately.

a.	Green waste	one (1) 30-cubic yard container
b.	Tires	one (1) 15-cubic yard container
c.	White goods	24 units
d.	Used Oil	330 gallons
e.	Recyclables	30-cubic yard container (4 ports)
f.	Scrap Metals	One (1) 30-cubic yard container
g.	Propane tanks	50 units
10. Mixed waste from residential sources may also be collected at the MDOF. The maximum capacity of mixed waste at the MDOF is two (2) 30-cubic yard, or smaller, roll-off containers or bins. The containers shall be located atop a concrete pad and under a roof, in the mixed waste drop off area indicated in the MDOF layout figure submitted May 1, 2009. Mixed waste shall be transported from the MDOF when the containers are full, or at least once a day, whichever comes first. The mixed waste shall be transported to the working face of the landfill for disposal, or to another permitted solid waste management facility allowed and willing to accept mixed residential waste.
11. An all weather access road shall be maintained into and within the facility.

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12. Scavenging at the facility by the general public is prohibited.
13. Adequate measures shall be prepared to prevent standing water, and to control stormwater run-on and run-off.
14. Adequate measures shall be implemented to collect generated leachate. Any collected leachate shall be properly managed and disposed of prior to creating a nuisance, health or environmental threat. Records shall be maintained as to the quantity and management of all collected leachate.
15. Suitable means shall be provided to prevent and control fires, including the implementation of *Emergency Services* procedures in your May 1, 2009 submission and the *Waimanalo Gulch Sanitary Landfill's Site Operations Manual, Section I, Part E, Emergency Action Plan* submitted December 14, 2009, and approved subsequent submissions.
16. Suitable means shall be provided to prevent solid waste from scattering; control litter, odors, insects, and vectors; and minimize nuisance conditions. If existing measures are considered inadequate, additional measures may be required.
17. All solid waste passing through this facility shall be collected, treated, recycled, or disposed of at a permitted solid waste management disposal and/or recycling facility.
18. Operational records shall be maintained and shall include a daily log of type and volume of solid waste transported from the MDOF, and the disposal/recycling destination of the solid waste.
19. The permittee shall submit an annual operation report to the DOH by July 31 of each year for the preceding fiscal year (July 1 to June 30). The annual operation report shall be submitted to:

Department of Health  
Solid and Hazardous Waste Branch  
919 Ala Moana Blvd., Room 212  
Honolulu, Hawaii 96814

The annual operation reports shall include the following information:

- a. Quantities of solid waste received by type including destination for disposal.
- b. Quantities (in gallons) of liquid waste (leachate) generated and method of management disposal.

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- c. Quantities of materials recycled from the waste stream by type and destination.

An estimate in gross values of tons, cubic yards, or quantity count, as appropriate, is sufficient.

20. The permittee(s) shall comply with the recordkeeping requirements relating to used motor vehicle tires as provided under HRS Chapter 342 I. The statute requires facilities that accept used tires to submit a summary of the following information by July 31 of each year:
- a. date of receipt of used tires;
  - b. quantity of used tires received; and
  - c. record of shipment indicating:
    - i) ultimate destination of the used tires;
    - ii) identification of the transporter;
    - iii) date of shipment; and
    - iv) quantity of tires shipped.